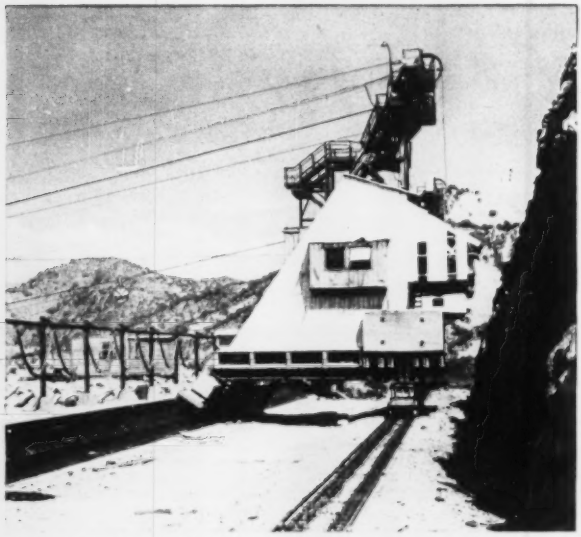
ENGINEERING NEWS-RECORD

A McGRAW HILL PUBLICATION



Cableway head tower, and tail tower across the canyon, are both driven on straight parallel tracks by G-E drives. Another set of towers for the service rig operates on the same tracks. Main cableway was built by Willamette Iron and Steel Co.

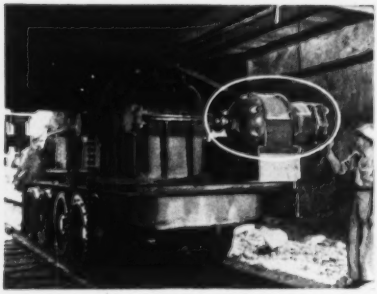
Cableway towers kept in line . . . electrically!

At Pine Flat Dam, G-E drives for movable head and tail towers prevent skewing, help keep pouring operations continuous!

Here's an example of the versatility of electricity on construction jobs—a co-ordinated electric-drive system that helps keep an important project ahead of schedule. It's at Pine Flat Dam on Kings River in California, where a modern, high-speed G-E powered cableway—together with another rig for service functions—has set a pouring record of 4000 yards in one day.

All motors and control for the main cableway tower-drives on this Corps of Engineers dam, being built by Pine Flat Contractors Associated Companies, have been supplied by General Electric. In addition, the electric devices to keep the two cableways on the track, safely apart, and correctly aligned across the 2420-foot canyon, were all co-ordinated for the job by G-E application engineers.

This kind of engineering help—in application, installation, and service—regularly supplements G-E drives and power distribution systems, helps *you* get the most from *your* electrified construction equipment. *General Electric Co., Schenectady 5, N. Y.*



Under the head tower, this G-E 75-hp wound-rotor induction motor is one of two that drive the tower. Motors for head and tail towers are controlled by a single master switch in the operator's station.

Tower alignment is maintained automatically. This selsyn generator, connected to a head-tower wheel, and another on the tail tower, feed signals to a differential selsyn which controls speed of the tower-drive motors.

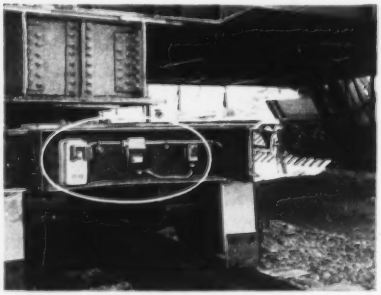


Photo-electric relays on each head tower automatically prevent the two rigs from colliding, and G-E limit switches keep towers from hitting stops at ends of the track. Thus operator can concentrate on spotting buckets.

Ask him today! **Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.**

GENERAL ELECTRIC

664-21

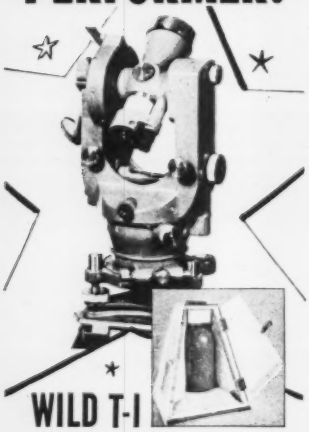
SHOPPERS' WORLD HAS LARGEST ARCHED-BEAM DOME

This picture shows part of Shoppers' World, Framingham, Mass., which caters to the shopping needs of more than 125,000 families in the Boston-Framingham-Worcester area. The 70-acre project has parking facilities for 6000 automobiles, and a 50-store, two-tiered shopping area in the shape of a "U". The base of the "U" is a 227-ft-wide, 54-ft-high dome, containing 36 fabricated beam-arches weighing 475 tons. This structure, with its 40,845 sq ft of floor space, is the largest dome of arched-beam construction ever erected. Used in constructing Shoppers' World were some 1200 tons of Bethlehem Structural Shapes, and 670 tons of Bethlehem Open-Web Steel Joists.

BETHLEHEM STEEL

Owners: Suburban Centers Trust, Boston; *Architects:* Ketchum, Gina and Sharp, New York; *Structural Engineers:* Severud, Elstad & Krueger, New York; *General Contractor:* George B. H. Macomber Co., Boston; *Steel Fabricator and Erector:* A. O. Wilson Structural Co., Cambridge, Mass.

STAR PERFORMER!



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ENGINEERING NEWS-RECORD

ABC Member ABC

Volume 148 APRIL 17, 1952 No. 16

WALDO G. BOWMAN
Editor

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ROBERT F. BOGER
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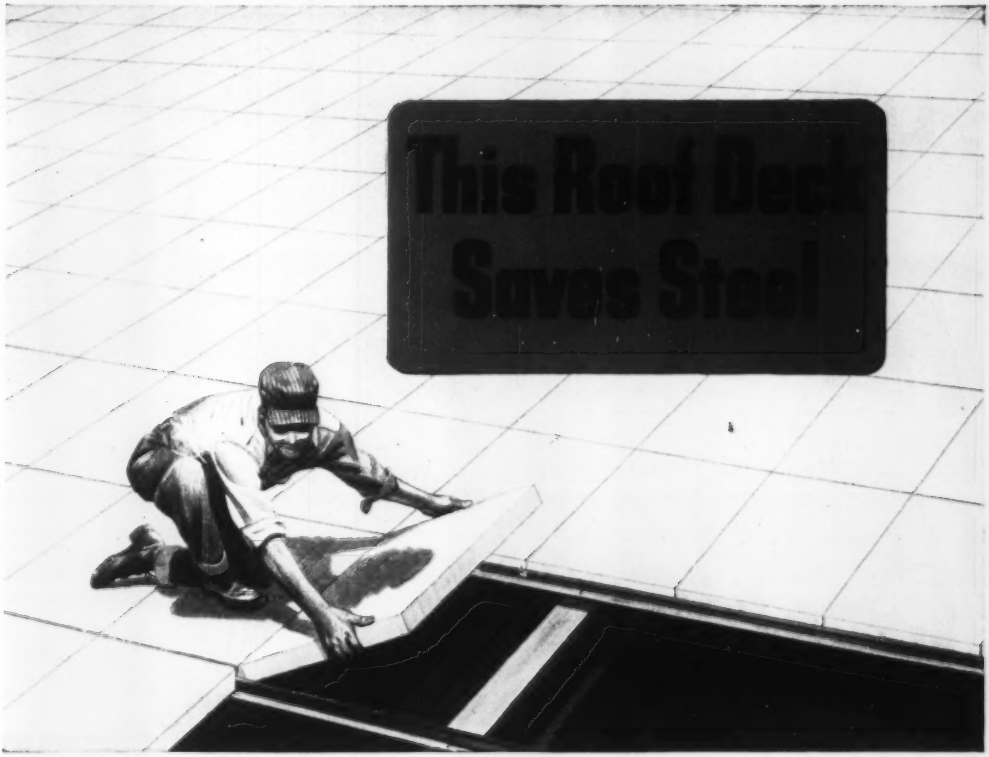

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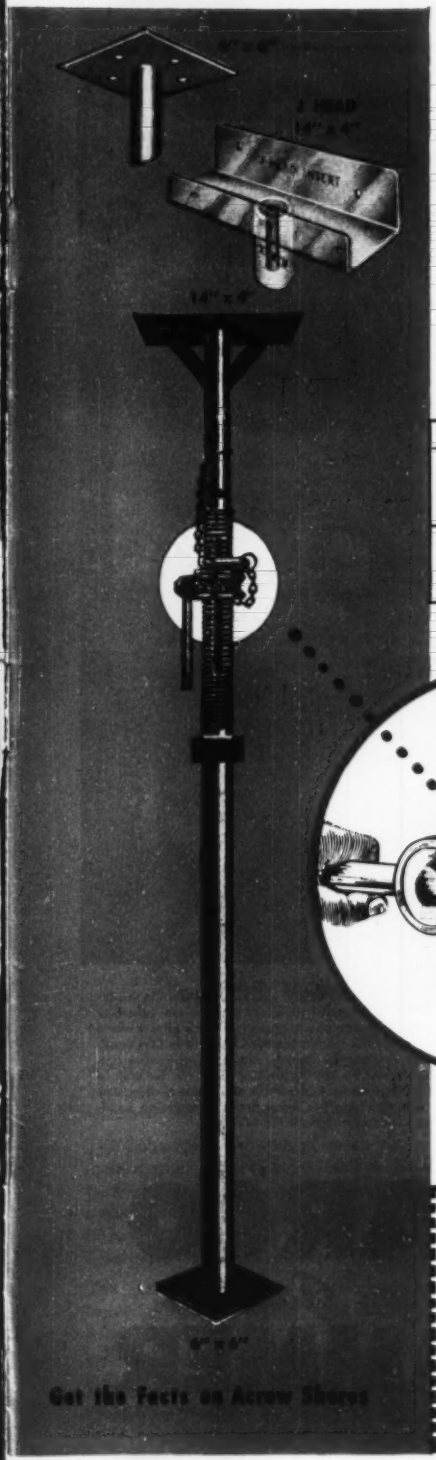

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Size No.	Height		Weight in lbs.	Failing Load		Recommended Safe Working Load	
	Fully Closed	Fully Extended		Fully Closed	Fully Extended	Fully Closed	Fully Extended
1	5 ft. 7 in.	9 ft. 10 in.	46	10.96 tons	8.97 tons	8210 lbs.	6720 lbs.
2	6 ft. 7 in.	10 ft. 10 in.	49	10.50 tons	7.90 tons	7840 lbs.	5975 lbs.
3	8 ft. 2½ in.	12 ft. 5½ in.	56	10.15 tons	7.55 tons	7490 lbs.	5600 lbs.
4	11 ft. 0 in.	15 ft. 0 in.	69	7.27 tons	2.89 tons	5225 lbs.	2050 lbs.

Head Types: Standard Shore 6" x 6" | Beam Shore 14" x 4" | J Head 14" x 4"

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ON OUTSTANDING JOBS ACROSS THE NATION

BARCO *is the Answer!*

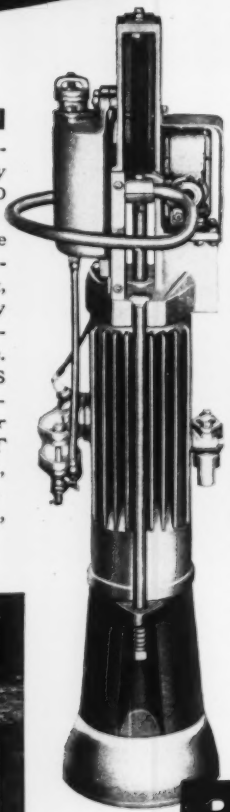
TEXAS DAM—On projects costing millions of dollars, it pays to use construction methods that insure permanence. That's why soil compaction is a very important factor in the construction of dams. This picture shows Barco Rammers working on the Whitney Dam Project on the Brazos River near Whitney, Texas. Contractors: L. P. Reed, Inc., and Martin & Grace, Inc., both of Clifton, Texas.

SOIL COMPACTION

is the key to *better construction* on important projects throughout the country —AND ON THESE JOBS, BARCO IS THE ANSWER!

Contractors and engineers, alike, are finding that unless soil is properly compacted during construction, settlement, erosion, and structural damage can easily develop in areas near abutments, foundations and walls, and other critical points.

This is where BARCO RAMMERS quickly pay for themselves! See for yourself—ask for a demonstration. *Send for our latest catalog and new "COST DATA" Bulletin.* BARCO MFG. CO., 1814E Winnemac Ave., Chicago 40, Ill. *In Canada:* The Holden Co., Ltd., Montreal, Canada.



OHIO FACTORY BUILDING—The Austin Company recently attracted nation-wide attention with the design and construction of an ultra-modern plant for The Lincoln Electric Company in Cleveland, Ohio. Evidence of the high standards of construction maintained by The Austin Company can be seen in the use of Barco Rammers in the above picture. The Austin Company has many Rammers in use on building projects throughout the country.

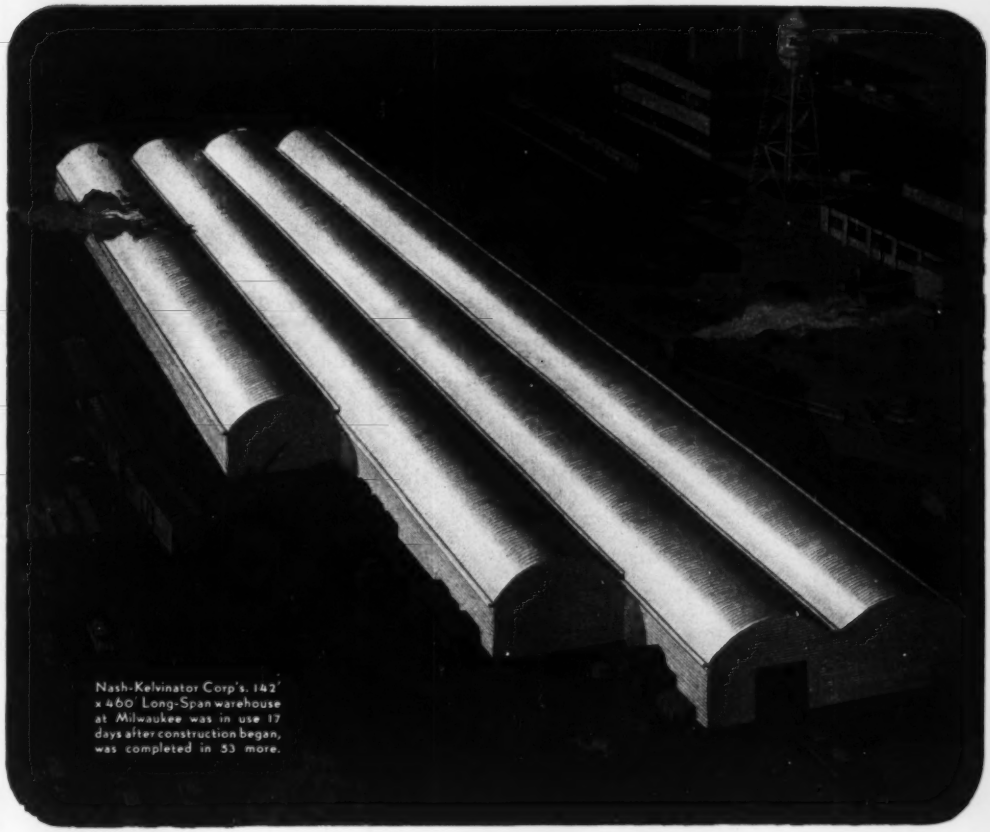
MISSOURI HIGHWAY—The State of Missouri has been one of the leaders in studying the value and importance of soil compaction on highway construction for preventing settling, washouts, and erosion. This picture shows Barco Rammers used by Fred Weber Contractors, Inc., St. Louis, on Missouri's famed *Natural Bridge Road.*

BARCO

"Pegson" Gasoline

RAMMER

For Soil Compaction Close to Walls, Culverts and Abutments — in Trenches, Ditches



Nash-Kelvinator Corp's. 142' x 460' Long-Span warehouse at Milwaukee was in use 17 days after construction began, was completed in 53 more.

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Dumping height (bucket hinge pin): 9 ft., ¼ in.	Dumping height (bucket hinge pin): 11 ft., 4 in.	Dumping height (bucket hinge pin): 12 ft., 8 in.	175 net engine hp.
Total weight: 16,200 lb.	Total weight: 29,900 lb.	Total weight: 40,000 lb.	Dumping height (bucket hinge pin): 13 ft., 5 in.
			Total weight: 61,600 lb.

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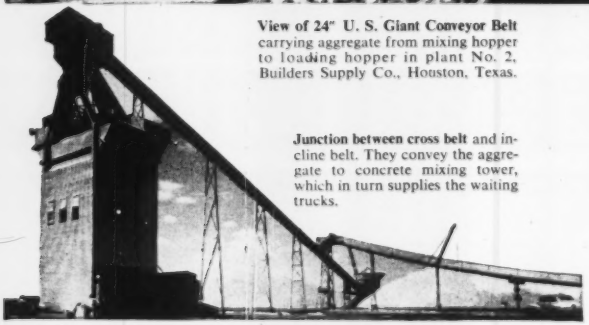
How U. S. Rubber belt engineers cut installation costs

View of 24" U. S. Giant Conveyor Belt carrying aggregate from mixing hopper to loading hopper in plant No. 2, Builders Supply Co., Houston, Texas.



Junction between cross belt and incline belt. They convey the aggregate to concrete mixing tower, which in turn supplies the waiting trucks.

In a new concrete mix plant, original plans called for the installation of a 5-ply, 36 oz. duck conveyor belt to handle the aggregates. But United States Rubber Company engineers pointed out that their 4-ply, 42 oz. duck belt would not only cost less, but would be more flexible crosswise to trough, would train more easily and provide high-tensile strength as well. This 1,275-foot, 4-ply U.S. Giant Conveyor Belt was installed. It travels 309' per minute and delivers 294 tons per hour.

This is another instance of why it pays to consult "U.S." engineers before going ahead on a conveyor belt problem. Remember that they are backed by a wealth of experience and vast research facilities. Finally, they will work with your engineers and with the designers of conveyor equipment—a 3-Way Engineering teamwork that always pays off in higher output at lower cost. Write to address below.

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READER COMMENT

Elastic theory confuses

Sir: The basic concept of factor of safety, to be logical, must include a determination of the collapse load of a structure. The elastic theory has confused the minds of designers and has been responsible for generations of muddled thinking and a lack of understanding of the real behavior of a structure when it approaches that loading which produces plasticity at the hinges.

With limit design, as you say in your editorial (ENR March 19, p. 19), safety factors can be made more uniform because they are applied directly to the loading instead of to the unit stress. I agree also with your statement that limit design offers the possibility of a unified theory for structures, the members of which are subject to combined stress.

The proponents of prestressing should realize that prestressing does not alter the collapse load of a structure determined by limit-design theory.

F. H. FRANKLAND
Consulting Engineer
Frankland & Lienhard
New York, N. Y.

Publicity for engineers

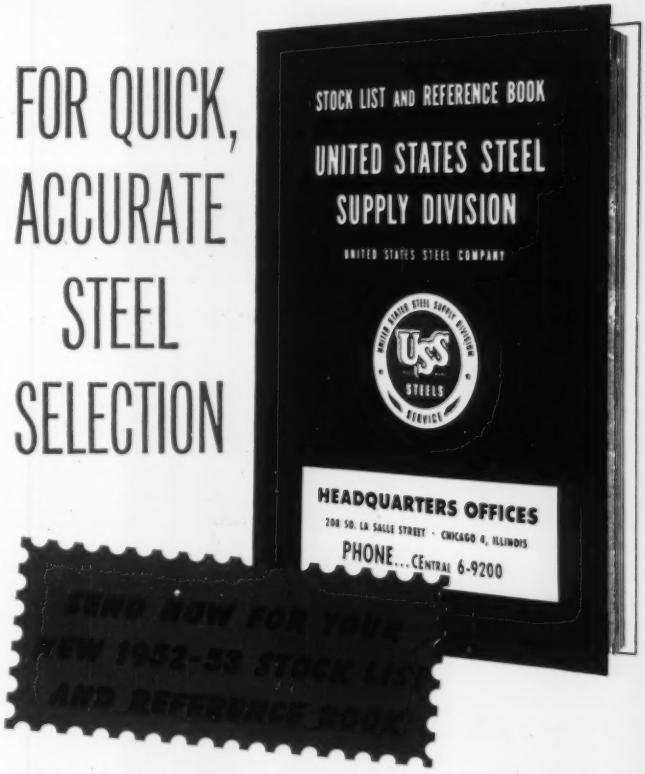
Sir: It was with a great deal of interest that I read your splendid editorial entitled "Silent Service is not Enough," in the Jan. 17 issue of Engineering News-Record.

I agree heartily with your premise that engineers must tell their story in an effective, yet dignified, way. However, it is a little disheartening that you find it necessary to go all the way to Quebec to find an example of an engineering organization doing public relations on behalf of engineers. With all deference to the Quebec engineers, I do not believe that their public-relations program can compare in scope or size with the public-relations activities of the National Society of Professional Engineers.

For more than a year NSPE, and its 38 affiliated state societies, have been doing something about getting publicity for engineers. Take "Engineers' Week," Feb. 17-23, sponsored by the National Society of Professional Engineers as a good example.

Spot announcements discussing the key role of the engineer have been arranged to be placed on a great many television and radio network programs. One radio network has donated a half hour of its best time for a discussion of engineers and engineering on a coast-to-coast hookup. Spot announcements, tracing the progress our civili-

FOR QUICK, ACCURATE STEEL SELECTION



● This easy-to-use, illustrated steel guide is packed with useful information and features:

● A list of steel, tool and machinery stocks with specifications and technical data on all steels including alternate and tentative standard steels.

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zation has made in the last quarter century through engineering, have been sent to every radio station in the United States. Many of these stations have signified that they desire to cooperate by putting these announcements on the air, and many more will doubtless do so.

Publicity material has been sent to various national news syndicates over a period of time. On several occasions material with an engineering slant has been syndicated by the Associated Press, United Press, and International News Service to virtually every newspaper, radio and television station in the United States.

Approximately 65 copies of "The Dream Builder," a radio script about the engineering activities of George Washington, have been tape-recorded and put on local radio stations by NSPE's local chapters.

NSPE, during 1951, raised more than $30,000 through voluntary contributions of its members for its PR program. Its executive research surveys, designed to discover facts about engineers in our industrial economy, promise fruitful results for all engineers.

C. G. Roush
Chairman, Public Relations Committee
NSPE
Kansas City, Mo.

Bonded prestress favored

Sir: In two letters—"Watchmaking" by Jacob Feld (ENR Oct. 11, 1951, p 49) and "Why prestress?" by Homer M. Hadley (ENR Dec. 20, 1951, p 11) controversial points have been raised. Mr. Feld would be quite correct to doubt the economy of prestressed concrete if "equal standards are used for ordinary reinforced concrete"; but this is not possible, since ordinary reinforced concrete would become unserviceable under a load corresponding to stresses 80 to 90% of the strength, as Mr. Feld suggested, in view of the large permanent deformations and cracks. On the other hand, prestressed concrete does not show any noticeable consequences after such loading. This is the essential point which permits the design of very shallow constructions in prestressed concrete that are impossible with ordinary reinforced concrete under the present crack-limiting stresses.

Mr. Hadley's question, "What does it cost?" is certainly important. Prestressed concrete ought to be used on an economical basis. His comparison of two different contracts does not appear to be conclusive, however, since prestressed concrete alone certainly cannot account for such a large

(*Continued on p. 15*)

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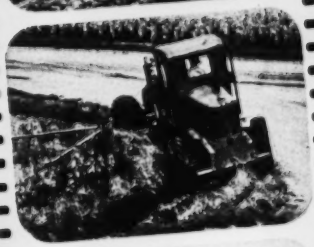

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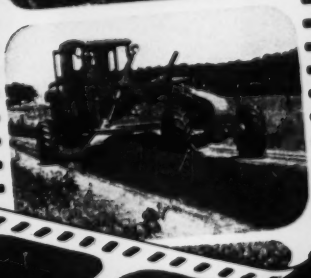

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(*Continued from p. 12*)

difference in costs. Assuming those of foundation, abutments and piers as half the entire costs, the difference between the two decks would be even greater. It is likely that at the first application of a new method the labor costs are abnormal, since experience must be first gained, and so it is advisable to start with a small job.

Moreover, it is fair to compare only similar constructions and this is not the case with prestressed concrete having a high factor of safety against cracking and ordinary reinforced concrete with cracks developing under design load. Thus, greater costs are justified if a higher factor of safety against cracking is obtained; nevertheless, it is always possible to reduce the quantity of tensioned steel and thus the costs by applying partial prestressing as suggested by the writer.

With regard to the reference to a labor expense of 152 man-hours per ton of steel for the Walnut Lane Bridge, this amount is certainly a multiple of that required in countries where this work is frequently carried out and experience has been gained (e.g. 35 man-hours per ton of steel for wire 0.276 in. in diameter in Great Britain). If one considers only the minimum labor costs in man-hours and wishes to avoid or reduce the use of skilled labor at the site (which Mr. Feld calls "watchmaking"), the solution is to manufacture prestressed concrete by pretensioning wire over long lengths under factory conditions.

Wire 0.2 in. in diameter, ensuring satisfactory bond, may be tensioned in a long length; say, 500 ft. The cost of simple assembly of individual wires and of tensioning is spread over a number of units and only the cost of burning off the wire ends has to be added to labor costs per unit. Thus it is possible to reduce the labor cost of tensioning to 10 man-hours per ton which could further be reduced if more mechanical appliances are used. In fact, this is, from the point of view of labor costs, the cheapest way to obtain an efficient transmission of prestress to the concrete.

It is a pity that many Americans do not appear to appreciate pretensioning, where the prestress is transferred by bond only, and prefer the use of unbonded bars tensioned in a somewhat primitive manner by turning nuts around threads. However, it is hoped American enterprise will recognise the possibilities inherent in this method of manufacture, allowing, as it does, mass production by standardization under factory conditions.

P. W. Abeles
Consulting Engineer
London, England

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ATOMIC CONSTRUCTION HOLDS BIG POTENTIAL

The Atomic Energy Commission may have big news for the construction industry within the next few months. It will soon announce results of research now underway on civilian use of atomic power—which may pay off in billions of dollars worth of new heavy construction in the future.

Atomic energy is already a big source of demand for construction. And there will be a lot more building if Congress passes the proposed $5-$6 billion expansion of atomic program.

• Plenty of Problems—Right now, work on atomic power is just in its infancy. The U. S. and British governments have both produced small amounts of electricity from atomic energy. But no one has solved the problem of turning out power on a large, commercial scale.

Eight U. S. industrial companies have been studying atomic power and fuels under Atomic Energy Commission direction. Their reports will be in soon. If they are favorable, one or more of the companies will start work on building facilities for further experiments—and perhaps, eventually, for full production of atomic power and fuel.

But this won't happen overnight. Gordon Dean, AEC chairman, says commercial production of atomic power is five-ten years away. A lot of experts think it will take longer than that to lick all the technical problems involved.

1) Getting all the energy that's locked up in uranium. Theoretically, one pound of uranium contains as much energy as 1,500 tons of coal—yet costs only about $45. The trouble is that only a very small part of the uranium can be easily converted into energy. Experts believe that the rest of the uranium can be turned into fissionable plutonium in a "breeder reactor." But it has not yet been proved—though it may be soon.

2) Once uranium's energy has been freed, there are a lot of other problems to lick. How to convert heat from the reactor into electricity is one of the big ones. One idea is that heat can be taken out of the atomic pile by a series of pipes containing molten metal.

• Costs—Once all these problems are solved, the big question will still remain: Can atomic energy compete economically with power from other sources? A lot of experts think the answer will be "no," at least for many years.

The high cost of atomic installations is the reason. Atomic facilities require much more construction than ordinary power facilities. Workers must be shielded from atomic radiation. And careful—and expensive—provision must be made to dispose of radioactive wastes. So it's likely to be a long time before atomic power competes on a cost basis with other kinds of power.

But some plants—experimental and government subsidized—may be built soon, despite this cost problem. And there is one other area where atomic power may be put to work on a large scale in spite of the cost problem. That's in foreign countries that lack adequate coal and water power.

Most other nations could not build their own atomic power facilities—at least not for many years. The U. S. and Britain will have a virtual monopoly on the technical knowledge required to set up any kind of atomic power source, at least outside the Iron Curtain. Result is that construction of power facilities is likely to provide jobs for U. S. builders.

• The Outlook—Commercial electric power from atomic energy is still years away. It may not come into general use in the U. S. for decades. But—if current research pays off—U. S. builders may be putting up domestic facilities on a small scale within a few years. And the possibilities for overseas construction are—potentially—very promising.

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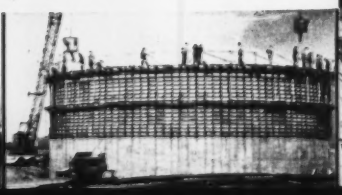

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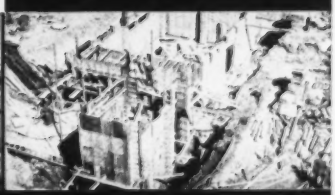

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THE CONSTRUCTION WEEK

STRUCTURALS FACE PRICE REGULATION—A new regulation for pricing structural shapes is being worked out by OPS and a committee representing fabricators. Chances of adoption appear good, if price officials and the industry can agree on what products should come under the proposed regulation. Structural steel is now priced under the general ceiling price regulation or under Ceiling Price Regulation 30, which was written primarily for machinery. The industry has wanted a tailored ceiling of its own for months, on the grounds that existing rules don't take into consideration the widely varying costs of producing its products. It also wants a new base period. The industry's advisory committee recommended a tailored price order patterned after CPR 93—the construction regulation. This order fixes ceiling prices on the basis of current costs, plus nine-tenths of the highest markup for profit which the seller had in effect from July 1, 1949 to June 24, 1950. OPS officials said the general idea was all right, but wanted to know what products would be included.

IMPENDING FLOOD—The U. S. Army Corps of Engineers has indicated floods are inevitable in the California Central Valleys as the result of the heaviest watershed snow packs in history. The danger period will extend into July. Local Reclamation districts are busy bolstering levees. The Army will aid operations with technical advice when local and state resources have been used to the fullest extent.

MORE OUTSIDE THAN INSIDE—The House Appropriations Committee has shown what overseas air bases mean to the United States. By the end of June, the committee reported, the Air Force will have 28 more bases overseas than in the continental U.S. There will be 118 overseas—mostly in Western Europe, North Africa and the general Mediterranean areas—as compared with 90 inside our continental limits. And the overseas bases will continue to increase faster than the continental. When June 30, 1953, rolls around, the committee reported, the Air Force plans to have 143 airbases overseas and 99 in this country.

CONSTRUCTION MONEY IN TV—The Federal Communications Commission has lifted the three-year freeze on construction of new transmitting stations across the country. There will be ultimately construction of approximately 2,000 stations, as compared with the 108 now broadcasting. But hearings on granting of licenses won't begin until July 1, which means that construction permits aren't likely to be issued for any important city for perhaps a year. Most likely chance for early building will be cities where there is only one application for a station.

For cost and volume index see page 105.

IN THIS ISSUE—Record flood sweeps down on Omaha, Neb., (p. 21) . . . Army civil functions may be put under Interior (p. 23) . . . the outlook for structural steel is bright once again (p. 24) . . . WSB upholds Hedin decision, but reduces fine (p. 25) . . . Korea is getting a good road system (p. 26) . . . Congress rushes construction bills (p. 28) . . . Wage negotiations active across the country (p. 31) . . . CISC issues new set of regulations (p. 32) . . . Boston redevelopment plans spurt (p. 34) . . . Indian dams to get expert's supervision (p. 45) . . . powered equipment helps build industrial plant (p. 57) . . . money saved on Illinois highway improvements (p. 59) . . . Septic tank know-how reported (p. 62) . . . Canyon Ferry Dam construction stepped up (p. 68) . . . $10 billion needed for school construction (p. 101) . . . DPA changes construction pattern (p. 104) . . . Censorship comes a cropper (p. 128).

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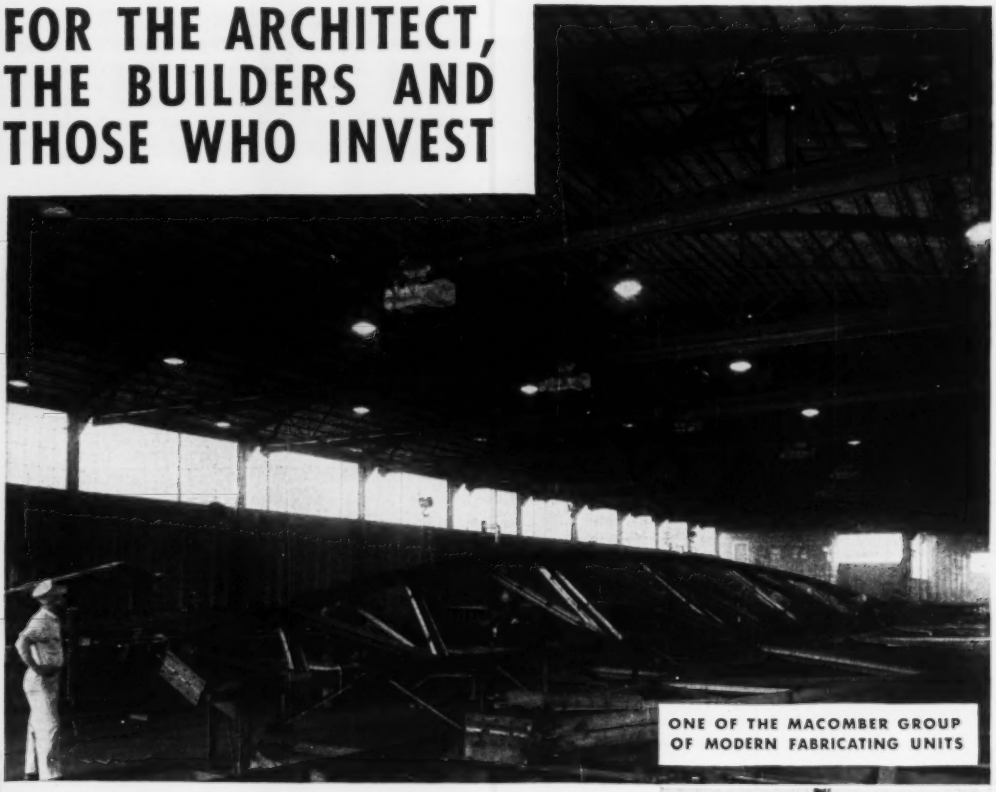

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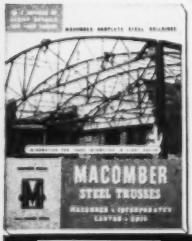

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MISSOURI INVADES MAIN STREET—Pierre, S. D. was hit by its worst flood in 71 years. The Missouri River inundated the entire town of Ft. Pierre, flooded more than 25 blocks of Pierre's low-lying residential and business area. (Wide World Photo.)

Omaha braces for its biggest flood

By J. Roland Carr
Associate Editor

OMAHA, NEB.—With the U. S. Weather Bureau predicting a flood stage at Omaha 7.5 ft. higher than the record flood of 1881, both that city and her sister, Council Bluffs, on the opposite bank of the Missouri are digging in for an all-out flood fight.

The crest was expected to reach Omaha Wednesday with a gage reading of 31.5 ft. and hold for 24 hours. By comparison, the 1943 flood which breached locally built levees, inundated the municipal airport to a depth of 7 ft. when it reached 22.4 ft. on the Omaha gage.

"This threatens to be catastrophic. It places the present Missouri River flood in the same league as the 510,000-cfs Kaw River flood at Kansas City last summer," says Brig. Gen. Don G. Shingler, Missouri River division engineer, who is marshalling his forces.

• **Ace-in-the-hole**—The Corps of Engineers have one ace-in-the-hole, however, in the protection of Omaha and Council Bluffs. It is the 12-mile system of levees and floodwalls they completed in 1949 along the Omaha riverfront and the 7 miles of levees on the other side of the river to protect Council Bluffs.

Both systems tie into bluffs above and below the two cities. These two levee systems were built to handle a design flood of 26.6-ft gage at Omaha, representing the largest flood on record.

While this design flow of 26.6-gage reading is 3.9 ft lower than the predicted flood crest of 30.4, the systems were built with a 5-ft freeboard. No one in Omaha, however, is assuming this extra freeboard will result in eliminating all danger of serious flood damage.

The water will be 3.9 ft above the flood design elevation of the Omaha-Council Bluffs levee system and within 11.1 ft of the top of the levees. With only 1.6 ft of freeboard it will take only a few gopher holes,

unpredictable wave action, or battering action of a few floating logs to breach the levee, with a strong possibility of virtually bluff-to-bluff inundation of both cities.

• **Fight on**—Faced with near hopeless odds, Gen. Shingler and Col. Hoeffer have thrown their flood fighting forces into high gear. They are pulling 150 men out of the Kansas City district who sweated out the Kaw River flood last summer. Others will be called in to help from division and district offices all up and down the Missouri and Mississippi. "Our best engineering judgment will be concentrated on minimizing loss and damages, while loss of life must not be permitted to happen," Gen. Shingler said.

Omaha and Council Bluffs are being evacuated. Commercial, industrial and private home owner losses will be tremendous if the levee systems fail to hold. In some areas of Omaha a 30-ft crest would reach as far as 17th street.

The three main-stems dams under construction above Omaha have suffered little damage from the flood. Flood water overtopped the outer plug of the powerhouse approach channel at Garrison Dam but a second earth plug kept it from entering the intake structure. The main embankment at Fort Randall, scheduled

Flood . . .

for closure this summer, suffered no discernable damage from the high water, while construction at Omaha Dam wasn't far enough advanced to be visibly affected.

"Had this flood held off for another year," said Gen. Shingler, "it would have been easier to control. By that time closure would be completed at Fort Randall, permitting it to take considerable crest off the flood. With both Fort Randall and Garrison embankment closed, the Missouri could be held to bank full stage below Fort Randall, even with the present.

The entire flood area up and down the river has been organized on an area-setup for Army Engineer supervision of flood fighting.

The actual work of flood fighting, however, is primarily the responsibility of local citizens. Sandbags have been brought in by the thousands. The Red Cross established a liaison office in Gen. Shingler's headquarters April 11, demonstrating its concern over what may happen. And the Coast Guard was standing by for any emergency.

• **What caused it**—The hydrological reasons for this greatest flood on the Missouri are these: an unusually heavy blanket of snow had formed over the upper plains area in the Dakotas and Eastern Montana. A sudden heat wave last week (80 deg at Rapid City) melted this 15 to 20-in. blanket, which had a high moisture content corresponding to 4 to 6 in. of rainfall. What aggravated the situation was a sheet of ice beneath the snow that prevented infiltration of the snow water into the ground. As a result there was an abnormal runoff.

Also, at the beginning of the thaw, major tributaries of the upper Missouri such as the lower Yellowstone, Little Missouri, Heart, Moreau, Cannonball, White, Knife and Bad Rivers, suffered extensive ice jams during the spring breakup. This retarded early flows and created considerable backwater.

• **It's a long flood**—This is no flash flood bearing down on Omaha. On April 11 the Missouri was in flood all the way from Bismarck and to St. Joseph, Mo., a distance of 1,000 river miles. As the crest moved downriver the flood extended from bluff to bluff, it ranged up to 2 miles wide from Bismarck to Yanktown, S. D.

"For the past three weeks," said Gen. Shingler, "Fort Peck Dam has been absorbing the shock of a sizeable flood in the upper reaches of the Missouri. Flood flows into the huge reservoir in northeastern Montana (one million acre feet of flood storage capacity and 19.4 million acre-feet total storage) have reached 80,000 cfs. As flood conditions worsened downstream, the outlet controls were pinched down to a discharge of 2,700 cfs. Just how much worse Pierre, Sioux City, Omaha and other cities in the path of the flood would have been hit had it not been for Fort Peck's protection, is a moot and horrifying question," said the general.

At Pierre, S. D., the business district was inundated and 1,600 of the 4,000 inhabitants were forced to evacuate. At 6:30 a.m. April 11 the last of the city's four municipal wells was put out of commission, leaving only a three-day supply of water in storage reservoirs. And a touch and go fight was being waged to save Pierre's municipal electric power plant. Across the river, virtually all of Ft. Pierre's 700 residents had been evacuated, and its municipal power plant was flooded out.

At Bismarck, a reported 100 homes and several business establishments have already been flooded. And many thousands of acres of agricultural land along the Missouri and its tributaries were inundated.

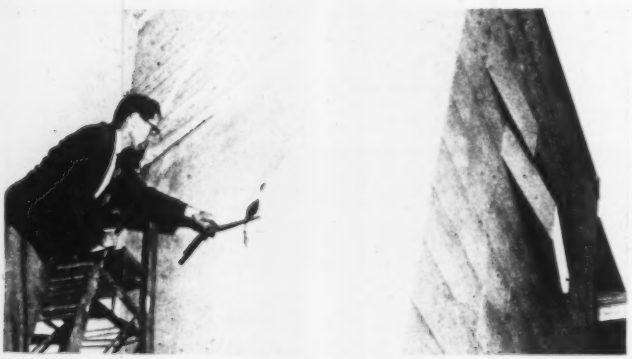
KANSAS CITY, MO.—Kansas City's levee system has been restored to its pre-July, 1951, strength, and should hold in check the rampaging Missouri river flood waters coming down from South Dakota, Nebraska and Iowa.

The flood crest is expected at Kansas City in 10 days. It is forecast at 27.5 to 28.5 ft. Natural banks will hold 22 ft. but the levees are designed to contain a crest of 40.8 ft. on the Missouri River.

The Kansas (Kaw) River dikes will hold up to 43.6 ft. Last July, the flood crest was 51 ft., resulting in the disastrous flood in Kansas City.

ST. PAUL, MINN.—More than 5,000 persons were already homeless early this week, as the worst Mississippi River flood in the city's history continued to rise.

The river level Monday was 21.7 ft. Flood stage is 14 ft. A crest of 22.4 ft was forecast for Thursday by the Weather Bureau. The previous high was 19.7 ft. in 1881.



QUAKE DAMAGES BUILDINGS—Chief Engineer Bill Robertson inspects a crack in the wall of the Lake Overholser pumping station, Oklahoma City, following the earthquake last week. At right, tiles bulge on the front of a Main Street business building. They were removed by firemen. The earthquake shook the Midwest April 9. Tremors were felt for 23 minutes in Nebraska, Kansas, Missouri, Arkansas, Oklahoma, Texas, and Iowa. Tall buildings swayed as much as six inches. Damage from cracks in buildings, falling plaster, and broken windows was widespread. Seismograph records at St. Louis University showed tremors starting at 10:31.08 a.m. indicating a displacement of four inches in the earth strata along an underground line 450 mi west of St. Louis. The earthquake centered under the Memaha Mountain Range that extends from Nebraska to Oklahoma. (Wide World photo)

Protection lacking in ice-felled bridge

Reports this week disclose that the Saskatchewan Landing Bridge which fell victim to the pounding of ice in the South Saskatchewan River (ENR April 10 p. 28) did not have any special design precautions against such an eventuality.

• The bridge did not have any buffer piers for protection against the ice.
• The bridge was not anchored to shore.

Highway Minister Douglas said that he did not believe anchoring would have done any good, and in any event, the banks were frozen making the step impossible.

Douglas also said that no other special precautions had been taken

because this was the first incident of its kind. He said the bridge was built like others across the South Saskatchewan River.

Local people are arguing that the bridge deck was designed too low in elevation. The design put the deck 31 ft above the water and was assumed to be several ft above previous high water marks.

• **Engineering details**—The 1,215 ft bridge has three reinforced concrete bowstring arches, each with a 90 ft span, at each end.

Over the water, there were three 216 ft steel spans. These were battered by ice and water for three days before ice pushed under the bridge and lifted the spans off, sweeping them some 40 ft before dropping them on the river bed.

• **The builders and designers**—The contract was let in March of 1949 to Bird Construction Co. Ltd. of Regina, Saskatchewan. Dominion Bridge Co. did the steel work. The province's highways department supervised construction.

• **How the bridge went out**—An ice jam backed up along almost 100 mi of the river raised the level of the river to new heights.

Canadian Army engineers blasted the ice jam eight mi below the bridge on the afternoon before the bridge collapsed. The blast had no effect on the level of the ice at the bridge itself.

A late night rise of three ft in the level of the river brought such pressure to bear under the bridge that the failure followed.

• **Remedies**—The hope of the highway department is to salvage the steelwork and replace it if possible. Completely new steelwork would cost an estimated $25,000.

As a temporary measure the army has offered the highway department a bailey bridge. If the bailey will not work the department may have to reactivate a ferry system.

Federal survey predicts strong year for housing

The 1951 housing pace will be matched this year if spending plans of consumers interviewed for the Federal Reserve Board are borne out. What's more, the outlook for 1953 is equally good.

Housing was one of the brightest spots in FRB's annual survey, which showed buying intentions for many items—automobiles, refrigerators, washing machines and other major appliances—were down.

Move afoot to put Army job under Interior Department

President Truman will send to Congress within a few days a reorganization plan to merge Army Civil Functions with the Reclamation Bureau in the Interior Department. The two would be grouped in a new division or bureau of the Interior Department.

Submission of the plan has been cannily delayed until an auspicious moment. Stripping of civil functions from the Corps of Engineers was the controversial high spot of the Hoover Commission proposals. In 1949, when the commission recommended it, the transfer would not have had a chance in Congress.

Today things are different. This is an election year, and the Army Engineers have been under heavy attack on their management of the overseas air bases. Trying to kill the President's plan at this time will be uphill work. The stoutest defenders of the Corps of Engineers doubt their ability to turn back the plan in either house of Congress.

Three years ago, congressional friends of the Corps of Engineers voted for a government reorganization law that they felt sure would stop any proposal to take away civil functions from the Army. The law says that either house can veto a reorganization plan by vote of a constitutional majority of the members. At the time, that provision was enough to block any tampering with the flood control and river and harbor functions of the Army Engineers.

• **Tough to stop**—But in this session, it won't be easy to corral a constitutional majority against the President's plan in either the Senate or the House. If the plan is not voted down within 60 calendar days by the one house or the other, it becomes law.

To meet the 60-day requirement, the President has had the Budget Bureau rushing work on the proposal. He wants to submit the plan before May 1, figuring that Congress cannot possibly adjourn until the end of June. (The Republican convention starts July 7.) That would give the necessary sixty days with Congress still in session.

A constitutional majority requires a preponderance of the total membership of either house. Further, the members must be present to cast their votes. It is not possible for an absent member to pair with one in attendance. This requirement cuts down the voting strength in an election year, when many members have to spend part of their time at home repairing their political fences.

Proponents of the President's plan have only to sit on their hands. They don't need to raise a finger unless the fight gets tough. It is up to the opponents to collect the majority that can vote the plan down. Otherwise, there is no sense in calling for a vote.

• **Hot reaction**—As customary, the Budget Bureau has submitted the reorganization plan to the agencies concerned. The reaction of the Army Engineers was intense and immediate. It is a foregone conclusion that the Defense Department will strongly oppose the plan. But any effective action against the proposal will have to come from advocates of the Army Engineers inside and outside Congress. Right now, the cards are stacked against the Corps.

Even long-time proponents of the Engineers have begun to waver under the deluge of publicity alleging mismanagement and waste on overseas bases. When the contractors for these projects have a chance to speak their pieces before the investigating committees, the atmosphere of suspicion and distrust is expected to dissolve. Unless it does, the President's plan will probably stand.

In its Interior Department report of three years ago (ENR March 24, 1949, p. 9), the Hoover Commission recommended that the river development functions of the Army Engineers be grouped with the Reclamation Bureau and three existing power agencies of the Interior Department in a new water development and use service.

Along with that expanded unit in the department, the report proposed three other integrated service divisions for Interior—one for all the federal government's non-defense building construction activities, another for mineral resources, and a third for recreation. Programs and plans of all four service divisions, the commission recommended, would be reviewed first by the department and then would be submitted to a board of impartial analysis attached to the President's office.

It is understood that the Budget Bureau's plan for unifying river development functions is in close accord with the Hoover Commission's proposal. Whether the plan goes as far in carrying out commission recommendations on the three other services for Interior had not been revealed as late as last week-end.

"Structurals are back on the boards in competition . . ."

Structurals make comeback

As lengthy shutdown of steel production was averted by government seizure of the steel mills last week, the outlook for continued easing of structural supplies for construction appeared promising.

L. Abbett Post, executive vice president of the American Institute of Steel Construction, Inc., in an interview with ENR last week, pointed out two important factors in the current steel situation:

(1) For five weeks prior to the shutdown in preparation for the strike, structurals were coming into easier supply. The National Production Authority has begun to relax controls; and whatever losses result from the shutdown will hardly come in quantities sufficient to change the course of its policy.

Because of an inventory cushion, there will probably be no serious drop in shipments of fabricated structural steel to construction projects. Shutdown losses can be absorbed within the framework of third quarter allotments; and by the end of the third quarter supplies should continue to loosen.

(2) Regardless of the shutdown, structural steel is back on the boards as a competitive design material. Promise of bigger allotments for coming quarters has reopened the field to normal use of shapes.

No single government pronouncement has signaled the change. NPA has not begun to advise designers to slow down on steel conservation for upcoming structures. But the general trend for relaxed controls is enough to point the way.

The steel shutdown is not expected to cause any change in the swing toward structural steel again in new planning. The most available substitute—reinforced concrete—will be penalized at least as severely as structurals by losses in reinforcing bar output; and lately bars have continued in short supply, while structural supplies have been improving.

• **Invitation**—Late last month, Post sent letters to architects, designers, engineers and others inviting them "to begin planning non-defense industrial, commercial and institutional construction projects involving fabricated structural steel."

"In view of the lead time required before fabrication can actually begin, it is not too early now to start working drawings for projects which you have had to shelve because of restrictions." Last week Post again put forth his invitation.

Post's opinions come from long experience with structural steel fabricating. A graduate mechanical engineer from Stevens Institute of Technology, he served as an ensign in U. S. Naval Aviation during the first World War, then went with the contracting firm of Post & McCord in 1919.

He became vice president and director of the company. In June 1941,

Supplies will continue easing . . .

New planning is invited . . .

Opposes continued controls . . .

he left the firm to join the Construction Division of the War Production Board in Washington. In June 1942, he became manager of the American Institute of Steel Construction, Inc. He was made executive vice president on January 1, 1947.

In conversation, he is pleasant and very direct. He faces the questions before the steel fabricating industry squarely, and gives straightforward answers. For example:

Has the Controlled Materials Plan been necessary?

Answer: "I am dead set against any unnecessary government control of industry. But I vote for CMP when there is a critical shortage of material. I feel CMP has done a good job, and, while it had caused a lot of confusion, it has saved a lot more confusion. Steel officials could not be expected to decide on the priority of projects for defense. They have no way of knowing the relative importance between two projects that may both be important to defense. And they have no way of knowing the components picture—how much other critical material will be needed if a project is built. They needed someone with the broad picture to take responsibility for establishing the priority."

How do you feel about CMP in the future?

Answer: "There is no reason for any controls when there is a normal supply of materials. Supplies of structurals are approaching normal. I think controls on structurals should be lifted by the end of the third quarter this year."

• **Indications**—Already actions of controls agencies in upping allotments and authorizing more construction projects is clearing the path for fuller use of structurals in future plans. Up until February, mobilization officials bore down heavily on steel conservation. Since then, relaxing of controls has pretty much freed designers from inhibitions regarding future use of shapes.

Post cites schools and highways as two examples of widening horizons for structural shapes. For the final quarter of 1951, the U. S. Office of Education set a limit of 60 tons per million dollars in gaging projects for construction approval. Later, it raised the ceiling to 75 tons of structural shapes, and recently it increased the level to 150 tons. At about the same time, 500 deferred school projects received construction permits and advance allotments of controlled materials for the third and fourth quarters of this year.

An allowance of 150 tons per million dollars will take care of normal design for most of the school projects in the United States. That limit is high enough to let architects resume use of structural steel wherever it best fits the design, Post points out.

Highways, too, are getting a lift on structurals; the third quarter allotment is stepped up to 125,000 tons from 80,000 in the current quarter. Further, the Bureau of Public Roads has received advance allotments of 85% of third quarter (roughly 100,000 tons) for the final three months of this year and 75% each for the first and second quarters of next year. Notice of these advance allotments has been passed on to the field.

Of equal importance, Post says, are advanced project allotments being issued to the owner highway departments—state, county or city. These owners can negotiate and place fabrication and mill orders even before a general contract is awarded. With structural deliveries thus scheduled well ahead, a contractor can take a job with reasonable assurance that he will receive materials when needed, and the owner department gets a better contract price. As much as two or three months can be saved in getting a job built.

The speeding up of plans for future projects has spurred the highway departments to put their working drawings in shape for ordering steel and awarding construction contracts. To take full advantage of the opportunity, the departments have to concentrate their engineering manpower on the most important projects, thus making best use of their scarce technical talent, Post says.

WSB upholds Hedin verdict; cuts penalty to $37,784

The National Enforcement Commission of the Wage Stabilization Board last Saturday ruled that the J. D. Hedin Construction Co. violated wage regulations in paying bricklayers $3.00 an hour for building a Veterans' hospital in Michigan. This upholds a regional commission ruling. (ENR Feb. 7 p. 24)

But the enforcement commission reduced the penalty recommended by the regional body. The reduced fine is $37,783.91, as against the regional commission's recommendation of $80,000.

This is how the National Enforcement Commission computed the fine: (1)—$4,056.41 as the excess wage payments made to the bricklayers by paying $3.00 an hour instead of $2.75 during the period of Feb. 28, to July 25, 1951; (2)—$33,727.50, which is one-half the entire amount paid to the bricklayers beginning with the first payroll date after July 26, 1951 to Nov. 14, 1951, when Hedin came into compliance. WSB finally had approved $3.00 an hour wage for bicklayers in the Washtenaw, Mich., area.

The case involved Hedin's building of a veterans hospital at Ann Arbor, Mich.

The National Enforcement Commission held, unanimously, that the Hedin company had failed to inform itself of WSB wage regulations, and was clearly guilty of violating regulations. The decision is the first major one to come from the commission, and the Board says that the decision is not subject to appeal in the federal courts except on a point of law.

Steward R. Carter, Jr., attorney for Hedin, says the company's next step will be to ask the WSB to permit an appeal to the federal courts. Such privilege is necessary before the courts will accept an appeal.

The commission did acknowledge that WSB had not until July 26, 1951—after the company had begun to pay the illegal $3.00 an hour—put out a specific wage regulation for the construction industry. This was the commission's reason for reducing the penalty.

• **Consistency**—Economic Stabilization Director Roger Putnam only recently took further steps designed to put consistency into penalties levied under wage and salary enforcement agencies.

As in the Hedin case, the penalties mostly have been merely the amount of the wage overpayment. The outside that Hedin could have been fined was $116,131.50—the entire payroll during the period of violation.

Some regional commissions have been fining companies for less than even the excess payment. Young-Loftus Construction Co. was ordered by the San Francisco Commission to disallow only three-fourths of the excess wages paid to carpenters on a San Diego housing project.

In two other cases, the Cleveland commission washed out compromise penalties agreed to between the companies and WSB attorneys and dismissed the cases.

Putnam, on April 5, issued General Order 15 revising the rules. He said that where extenuating and mitigating circumstances exist, the policy should be to disallow at least the excess wage payment.

"FIRE IN THE HOLE"—Engineers blast loose some fill for road-building dozers.

Fighting men build road net to become Korean legacy

Korea—tragic and devastated—may yet derive one benefit from war. It may come in the form of wide, solid roads running the length and breadth of South Korea. They may form the best transportation network in any Asiatic country.

Built largely by American engineer units, these roads have carried the guns, men, and heavy equipment required to fight communism. If post-war Korea develops its northern industrial and mineral resources, the roads may carry commercial traffic needed to rebuild the prosperity of the shattered land. South Korea is chiefly agricultural and the roads will link the two Koreas into an economic unit.

A rapid-fire program of road-building and maintenance is going on—accelerated now that spring thaw is here. On the Eastern front the precipitous, steep ridgelines have produced near-miracles of road engineering.

Marine Corps engineers are still marveling at some of the truck roads and tank paths hacked out of mountainsides. In 1951's see-saw offensive, bulldozers weren't always available and some roads stand as a tribute to Marines and soldiers armed with picks, shovels, explosives and determination.

In recent months these roads have been improved enough to rival many U. S. state and county highways in width and the ability to carry great tonnages. Given any maintenance in future years, they can be a money-making asset for a nation facing a bleak economic future.

• **No more cart trails**—Originally these roads were one-way goat and cart trails, used by Korean farmers to haul rice down from their terraced mountain paddies. Bombardments by aircraft, artillery, and naval gunfire chewed up farms and roads alike. Then, in the fall of 1951, Marine engineers fought with the infantry back above the 38th parallel, virtually hanging roads on cliffs so supplies could reach riflemen hammering a tenacious enemy.

At first only a tank or bulldozer could crawl over the 50 miles of debris-strewn roads in the First Marine Division sector. Then a jeep could grind and bump its way up the inclines, around hairpin turns to the front. Finally, sweating Leathernecks with jackhammers and high explosive carved out a road to meet military requirements: Twenty-two feet wide at least, a four foot shoulder on each side, not more than a 10 percent grade, and the ability to stand a 50-ton load by 2,000 trucks daily.

That kind of a road doesn't come cheap. According to Lieut. Colonel John V. Kelsey, of Alexandria, Va., C.O. of the Marine Engineer Battalion, such roads would not be built at all in the United States.

"They'd be too expensive," he explained. "But in this kind of a fight we had to cope with terrain as we met it."

That meant blasting away granite-filled ridgelines, improvising bridge supports, scraping rock from beds of frozen rivers, and hauling up brawny people with axes to fell whole forests of pine trees for cribbing to support embankments.

Now the Marines' Main Supply Route—the MSR—twists and gyrates up the sides of mountains where a man can climb almost straight up for a thousand feet, take one step, and find himself falling down the

ROADBUILDERS—Marine Corps and Army Officers who build and maintain MSR's in the First Marine Division Area: (left to right) Lt. Col. Denis B. Grace, USA, New Alexandria, Va., commanding officer of the 1343rd Army Engineer Bn.; Lt. Col. John V. Kelsey, USMC, Alexandria, Va., commanding officer of First Engineer Bn., First Marine Div.; Lt. Col. Franklin B. Nihart, USMC, commanding officer of First Shore Party Bn., First Marine Div.

other side. Over the MSR's, sometimes-icy, sometimes-dusty, move the beans, bullets, and gasoline to supply thousands of Marines in cold front-line bunkers.

• **Koreans work hard**—Nearly 1,000 Marines work constantly to maintain the MSR from the front lines back to regimental areas. There, skilled Army Engineers take over maintenance into the rear areas, employing hundreds of paid Korean laborers to scrape, clear, and drain the roads they will someday inherit.

Considering the high-gear road network existing in Army divisions across the front, there's little doubt that the ultimate road network spanning this bloody peninsula will be an "inheritance" worth millions of dollars.

That such Koreans as now work for the U. N. can properly maintain that legacy is felt strongly by top engineers.

"We've seen whole villages of Koreans turn out," said Col. Kelsey. "With baskets, they can move tons of dirt and rock.

"The Korean doesn't have anything on his mind in this work. If he must swing a pick for 10 hours to keep the road clear, that's what he does.

"It took a lot of skill for these people to terrace these rice paddies and put in such a fine irrigation system," Kelsey said. He feels that, ultimately, they will get the chance to show whether they have the long-range determination to lengthen and keep up the costly sprawling MSR's all over Korea.

Wage-price pact sought in steel; shutdown losses won't hurt much

Of the 825,000 tons of steel lost during the shutdown in preparation for a strike last week, about 165,000 tons will be lost to the construction industry. Included in the losses will be about 35,000 tons of structurals and about 23,000 tons of reinforcing bars.

These losses are not expected to cause any serious delays in construction schedules. As rolling mills gradually resume production this week, most fabricators and constructors had enough supplies on hand to continue operations uninterrupted until production is restored.

The freeze on steel deliveries for consumer goods and for export was lifted last week as Charles Sawyer, Secretary of Commerce, took over as nominal operating head of the steel industry under government seizure order. Acting Mobilization Director John R. Steelman called new meetings between steel industry officials and CIO leaders, to attempt a negotiated settlement of the wage-price dispute. In the outcome of such talks construction has a large stake.

Increased labor costs are certain to result, and so are increased prices for steel (ENR Apr. 10, p. 24). The principal question remaining appears to be how much the price of steel will increase.

• **Predictions**—It has been the government's position that the steel industry is entitled to a $2-to-$3-per-ton increase under the Capehart Amendment. Last week it was reliably reported that the government was ready to give a price rise totaling $4 to $4.50 a ton, provided the companies settled before the deadline set for last Tuesday night.

The industry has maintained that it will need a $12-per-ton price increase to offset the wage increases recommended by the Wage Stabilization Board.

Last week also, Iron Age, unofficial organ of the industry, predicted the price increase will be about $5 per ton. This is similar to the prediction made last week in ENR (p. 24) that the final settlement will be between $5 and $6 per ton.

It appears the union will also be forced to yield a little in its insistence that WSB recommendations be accepted without change.

Secretary of Commerce Charles Sawyer is now in charge of the steel mills under President Truman's seizure order.

Manslaughter charged in bridge failure case

Three men connected with construction of a temporary bridge across the Roanoke River which collapsed, were indicted on charges of manslaughter last week by a grand jury at Jackson, N. C.

The bridge, located four miles north of Scotland Neck, N. C., failed last summer, killing the driver of a truck which was on the span at the time of the failure.

Indicted and required to post $1,000 bonds each for trial at a term of Superior Court beginning Aug. 5, were: Harvey H. Stewart, Charlotte, N. C., head of the H. H. Stewart Co., contractor for the bridge; W. S. Murph, inspector-engineer for the contractor who was on the job at the time of construction; and J. M. Clagon, inspector for the North Carolina State Highway and Public Works Commission.

The indictment adopted by the grand jury included a report signed by John H. Barking as principal certified professional engineer in charge of an investigation undertaken by Solicitor Ernest R. Tyler.

• **Charges stated**—The indictment alleges that the North Carolina State Highway and Public Works Commission had failed to require that the temporary bridge be built according to standard specifications of the American Association of State Highway Officials.

It also alleges that those in charge at the construction failed to require that materials and construction work measure up to the alleged inadequate standards which the State Highway and Public Works Commission had permitted.

An earlier State Highway Commission report left the bridge's collapse undetermined.

• **Reported faults**—Barking's report included the among others following alleged violations of safe construction practices:

- Stress in deck planks 15% above allowable.
- Forty-three percent of deck planks were of gum, although gum was not a permissible lumber.
- No cross-bridging was used between joists.
- Calculated stress on main steel girder exceeded allowable by 41%.
- Load on center piling exceeded allowable by 140%.
- The report concludes that "It is doubtful that any single piece of material in the structure was free entirely of defects that would impair its strength . . ."

Sleeper section slipped into federal-aid road bill

A silent sleeper showed up in the 1952, Federal-aid Highway Bill (H.R. 7430) as reported out by the House Public Works Committee. Quietly introduced and accepted during closed sessions of the committee, the unexpected amendment would put the Commerce Department and the Bureau of Public Roads in the business of promoting and seeking nationwide compliance with the action program of the President's Highway Safety Conference.

In essence, that is what the Committee's new Sec. 7 of the bill amounts to. Starting out innocently enough, the amended section says that "The Secretary of Commerce shall prepare and reexamine and revise annually a program setting forth the essential actions which are necessary to increase and promote safety on the highways, roads and streets of the United States."

But the amendment then gets down to cases. The essential actions, it says, shall include but shall not be limited to: (1) writing uniform legislation for enactment by states and local governments; (2) formulating standards for highway construction and vehicle control; (3) enlisting public support through publicity and information campaigns; (4) devising uniform plans for accident recording and analysis; (5) promoting uniform enforcement of traffic laws, and (6) formulating uniform procedures for motor vehicle administration.

The next paragraph packs the hidden punch. It tells the Secretary of Commerce to "cooperate to the fullest extent possible with state, local and private bodies—with a view to securing nationwide adherence" to the program.

Other legislation moves

With the House rushing for an Easter vacation (April 10-22) while the Senate was plugging away at its backlog, Congress gave a demonstration of what is necessary to correct a silly-season law.

In formal language and by unanimous consent, the Senate passed S. 2591—which had the principal objective of relieving the Army Engineers of the obligation of selling surplus water behind its flood control dams to the highest bidder.

It happened like this: A year ago, the Senate bundled up an omnibus bill to void hundreds of obsolete laws and regulations affecting procedures of government departments. Among them—by mistake—was a provision voiding Section 6 of the 1944 Flood Control Act, which directed Army Engineers to dispose of surplus waters "in accordance with state laws."

That left the Engineers under general direction to dispose of surplus water "in the same manner" as other government surplus—in effect, by sale to the highest bidder. Westerners built up a quick head of steam over it—and the Senate acted to restore Section 6, at the urging of Senator McClelland, of Arkansas.

In other actions last week, the Congress:

II. The House . . .

. . . In cutting $478.2 million from appropriations for the Defense Department for fiscal 1953, made no cuts in construction money. An amendment introduced by Rep. Howard Smith (D., Va.) placed a ceiling of $46-billion on military expenditures for fiscal '53.

III. Senate Committees . . .

. . . Appropriations committee upheld House cut of $1.6-million in funds for construction of airport at Burke, Va., to serve Washington area.

. . . Interstate and Foreign Commerce Subcommittee ordered favorable report to full committee (with amendments) S. 2225, to create a committee to study and evaluate public and private experiments in weather control.

IV. House Committees . . .

. . . Public Works Committee favorably reported H.R. 6856 to extend the water pollution control act for three years (to June 30, 1956.) Act authorizes Public Health Service to spend around $25-million a year for five-year period for planning grants and construction loans for sewage treatment and grants to states and interstate agencies for industrial waste studies. Mark D. Hollis, assistant surgeon general of PHS, made a plea for permanent legislation and asked for passage of three-year extension as an interim means of handling "a problem that we have with us permanently in increasing measure." He said that PHS is increasingly concerned with chemical pollution. "The fruition of the chemical age—the rapid development and broad use of synthetics and the expanding significance of radiation—together may have an effect on the environment much more profound than we are yet able to conceive. The result of this impact will be an increasing pollution load on our streams."

V. Committee hearings . . .

. . Bailey subcommittee of House Labor and Education Committee recessed hearings on five pending bills dealing with federal aid for school construction, until April 23. At that time it will hold three more of hearings and then try to write a committee bill authorizing federal aid. Subcommittee will also consider three-year extension of Public Laws 815 and 874, which provide for federal aid both in construction and for maintenance and operation of schools in federally-impacted areas.

. . . House Interior Subcommittee recessed hearings on bill authorizing Hell's Canyon Dam on Snake River. Chairman Engle (D., Cal.) says that hearings can't be completed until May or June.

. . Senate Banking Committee delayed action on extension of controls. Committee will meet on April 17 to decide whether to reopen hearings as a result of breakdown in steel negotiations. House Banking Committee has delayed starting hearings on controls extension until after Easter recess.

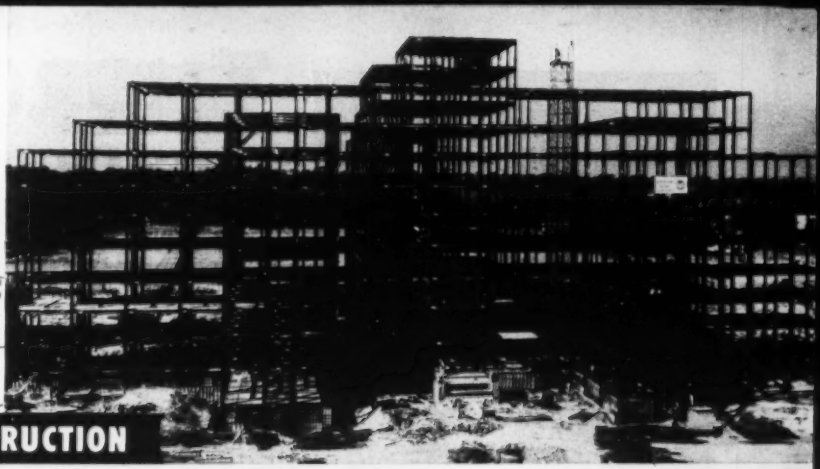
. . House Public Works subcommittee has recessed hearings on cutting back the backlog and authorization of some 900 Corps of Engineer projects that have never been started. Maj. Gen. Lewis A. Pick, chief of Engineers, has asked the Jones subcommittee to consider means of cutting back authorized projects that the Corps of Engineers has no intention of starting.

. . . Chairman Porter Hardy (D., Va.,) of House Expenditures subcommittee called a $6-million project for new barracks at Fort Meade, Md., as unnecessary.

VI. Reports . . .

A report on public housing prepared by Joseph McMurray of the Senate Banking Committee staff will build steam under Senate efforts to raise the ceiling on public housing starts for fiscal '53. In passing Independent Offices Bill, the House cut public housing starts to 5,000. McMurray's report revealed a backlog of 400,000 units from over 1000 communities, with only 13,500 units actually completed so far. Effort will be made to get Senate appropriations committee to boost authorization to at least 25,000 starts.

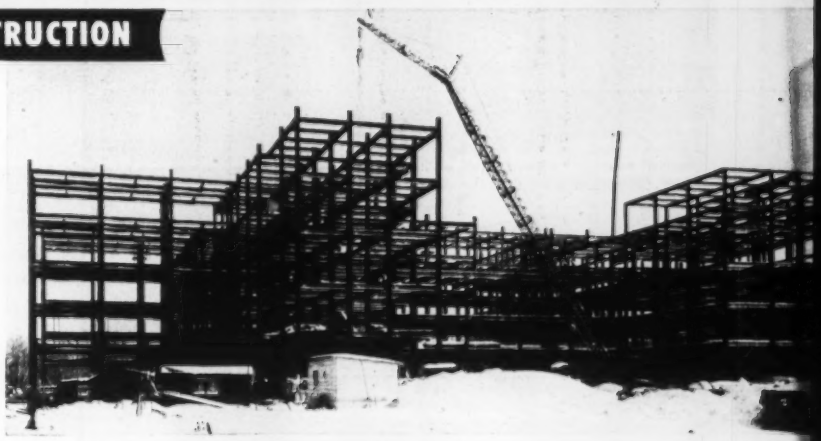
VETERANS ADMINISTRATION HOSPITAL, DENVER, COLORADO. American Bridge fabricated and erected the structural steel for main hospital building, 325' x 325', 9 stories high with penthouse; also the boiler house, the chapel, manager's building, apartment building, nurses' quarters and attendants' quarters. Total weight, 2,800 tons. General Contractor, Del E. Webb Construction Co. Plans by Veterans Administration Construction Service.



RIVETED CONSTRUCTION

WELDED CONSTRUCTION

VETERANS ADMINISTRATION HOSPITAL, MINNEAPOLIS, MINNESOTA. Fabricated and erected by American Bridge. Project included hospital building No. 43 - an 8-story structure, with setback and penthouse, and #43-1, an 11' wide x 76' long, 4-story connecting corridor, and a 61' x 117' x 13' 8" addition to laundry building. Hospital building #43 was of welded construction throughout. Total weight of steel, 2,100 tons. General Contractor, J. D. Hedin Construction Company. Plans by Veterans Administration Construction Service.



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USS TRADE MARK

AMERICAN BRIDGE

UNITED STATES STEEL

THOROSEAL
SCORES ANOTHER
HOME RUN
at the Braves Field

General contractor and technical supervisor of Standard Dry Wall Products, Inc., plan correction of an extreme condition existing in bleacher seats at Braves Field, Boston, Massachusetts.

Above photograph shows THOROSEAL FOUNDATION COATING being grouted into upper, or wearing, surface of bleacher seats.

Right photograph shows soffits of concrete seats where concrete has blistered away from reinforcing rods. Rods were sand-blasted and sealed with THORITE Patching Mortar and entire undersurface sealed with THOROSEAL.

General contractor, Henry Gironi, Allston, Massachusetts, an expert, with long experience in masonry maintenance, rehabilitation and surface protection, performs correction task on Braves Field, with satisfaction to all concerned. Waterproofing Products, Inc., Allston, Massachusetts, furnished the materials.

THORITE Patching Mortar was used for sealing rods and patching cracks and blisters in concrete. THOROSEAL FOUNDATION COATING was used for grouting wearing surfaces.

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Standard Dry 40th YEAR **Wall Products**

NEW EAGLE, PENNSYLVANIA

WSB rules snarl wage pacts

As more and more labor contracts expired this spring, labor and management found themselves enmeshed in a tangle of demands, offers and regulations.

Basic demand on the part of labor was the previously authorized Wage Stabilization Board's 15¢ an hour rise. In many cases this figure was complicated by the older 10% catch-up formula.

In addition, many unions were advancing hastily contrived welfare plans to take advantage of the permissive 7½¢ an hour contribution authorized by WSB.

In some areas, strikes and strike threats were used to enforce wage demands, in others peaceful negotiation sufficed.

Here is a picture of union-management relations around the nation:

I. Strikes and threats

Ten major construction unions in Greater Kansas City have threatened strikes unless general contractors agree to their demands for increased wages and changes in working conditions in contracts now being negotiated.

Contract negotiations continued despite the expiration of present contracts. The contracts expired midnight, March 31.

Labor memberships have voted to walk off their jobs if their demands are not met. Meanwhile, AGC and builder's association officials here are conferring with labor leaders in an effort to forestall a general construction labor walkout.

Strike votes have been taken by the major construction trades.

• **Partial strikes**—Meanwhile, a bottleneck in construction has already shown itself. Hoisting engineers have walked off ready-mixed cement jobs, forcing halts in projects needing this cement.

Each of the unions is negotiating separately with the Kansas City chapter of the AGC. So far, contractors have offered increases of 7½ to 12½¢ an hour. Unions have so far rejected the offers.

• **Strike in San Francisco**—Picketing started as the strike of 12,000 AFL carpenters in the San Francisco Bay area went into its second week, a move which was expected to take another 70,000 building trades workers off the job and halt construction work in the four-county area.

Opening of the second week was also marked by a contractors' offer of a 15¢ hourly wage increase putting wages at $2.60 an hour, to be effective May 5. The offer would reject a union-proposed welfare plan and would preclude reopening of the contract for the course of the agreement, which would run until June 15, 1953.

The union had asked for an interim 15¢ increase pending opening of negotiations on their contract with the eight builder organizations in the area that expires next June 15.

The contractors' offer also included a proposal to submit 12 points of difference to joint committees.

• **Columbus, Ohio, walkout**—Equipment operators at the site of the $1.5-million Courthouse Annex and the $20-million Westinghouse plant in Columbus, Ohio, returned to work, at least temporarily, after a short-lived strike. George S. Sheaf, Columbus, is general contractor for both projects. The strike was unauthorized, according to the business representative of Local 18, International Union of Operating Engineers. The walkout also temporarily affected a few smaller jobs.

The dispute concerned a union-management contract which expired April 1. The men were ordered to work while a contract is being negotiated.

Philip O'Day, secretary of the Columbus AFL Building Trades Council, which includes the operating engineers local, said the workers want a 22¢ raise. He declared:

"The WSB says they should get 15¢ an hour plus 7¢ an hour that they didn't get last year when other workers got a 10% boost. Wages for the operating engineers here now range from less than $2 an hour for oilers to a top of $2.60 hourly for the big crane operators."

• **Other strikes**—Structural steel workers in Eastlake and Akron, Ohio went off their jobs to support their demands for a 25¢ an hour wage increase. . . . Operating engineers in Charleston, W. Va., returned to their jobs having agreed to a 12½¢ hourly wage increase.

II. Peaceful settlements

Elsewhere in the nation there were

(Continued on next page)

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Here are just a few of the "extras" that keep Coffing Safety-Pull Ratchet Lever Hoists on the job — and save on maintenance costs.

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Labor . . .

more peaceable settlements of union-management problems arising out of the WSB's construction wage hike.

In Hartford, Conn., the General Contractors Association signed contracts with two trade unions representing over 1,400 AFL workers. Under one contract, Hartford and New Britain locals of the hod carriers and laborers union will receive a 15¢ an hour wage increase retroactive to April 1. The bricklayers, masons and plasterers union was also granted a 15¢ an hour raise. Both contracts are subject to WSB approval.

• **Dayton, Ohio**—Negotiations of AFL Building Trades Council sought the maximum allowance under WSB's new ruling for new contracts to affect nearly 10,000 workers in 19 trades whose present contracts expire May 1. According to present contracts, if agreement is not reached by the expiration date, any wage change will be made retroactive to May 1.

• **Tacoma, Wash.**—A threatened work stoppage, jeopardizing a $45 million military construction program, was averted when strong protests from labor and management brought long-delayed WSB approval of 14¢ to 17¢ an hour increases. Cement finishers were raised 14¢, building laborers 15¢, and sheet metal workers, painters, reinforcing steel workers and structural iron workers got a 17¢ hourly raise.

• **Charleston, W. Va.**—Threats of a spring strike among Building Trades Council craft unions faded when five unions—plasterers, cement finishers, laborers, teamsters and marble helpers—accepted a cost-of-living wage agreement extension for two years. The cost-of-living formula okayed by the five unions calls for a wage increase of 5¢ an hour for each 3-point advance in cost-of-living averages.

CISC issues second regulation on wages

The 1952 construction wage-increase and welfare-plan policies recently approved by the Wage Stabilization Board (ENR March 20, 1952, p23) have been rubber-stamped by the board's Construction Industry Stabilization Commission.

CISC announced a policy resolution giving the details of how it will apply both policies. And—with three employer members dissenting—issued CISC Regulation No. 2 covering health and welfare plans. (The dissenters were James D. Marshall of the Associated General Contractors, Everett W. Dunn, consulting engineer, and H. R. Cole of the Title Contractors' Association. Marshall and Dunn, also WSB members, also dissented from the original policy decision.)

CISC explained it would be guided by these policies in acting on applications for approval of higher wages and fringe benefits for on-site mechanics and laborers:

Wage rates

1. As it has since Sept. 1, CISC will continue to approve increases in area rates to not more than 10% above the level of June 24 (in some cases July 1), 1950.

2. Unless the increase would be "seriously unstabilizing," CISC will approve an additional increase up to 15 cents an hour. For example, if the rate on June 24, 1950, was $2, the 10% formula allows an increase of 20 cents, or a rate of $2.20. The new formula permits CISC to approve a rate up to $2.35.

3. Application for increases beyond these limits will be examined on a case-by-case basis. Subject to WSB approval, CISC will approve additional increases where necessary to correct inequities.

4. No area rate may be increased without prior CISC approval. No wage may be paid in excess of the preapproved rate with prior approval from CISC.

Fringe benefits

1. In addition to wage increases, CISC may approve employer contributions up to 7½ cents an hour to health and welfare funds limited to the payment of temporary disability benefits, hospital expense benefits, surgical expense benefits, medical benefits, term life insurance and accidental death and dismemberment benefits.

2. Employer payments toward pension funds, annuities, vacation plans, paid holidays and the like—in other words, fringes other than health and welfare—will be approved only if their cost is charged against the permissible increase which has been allowed in the hourly rate.

JAMES D. MARSHALL, AGC member of the CISC, dissented from Regulation No. 2.

Retroactivity

1. When CISC is asked to approve a 10% increase retroactively, approval will not be given to any date earlier than the expiration or reopening date of the wage contract.

2. Retroactive approval of "15-cent formula" increases will be granted back to any date after Feb. 1, 1952, but not earlier than the expiration or reopening of the contract.

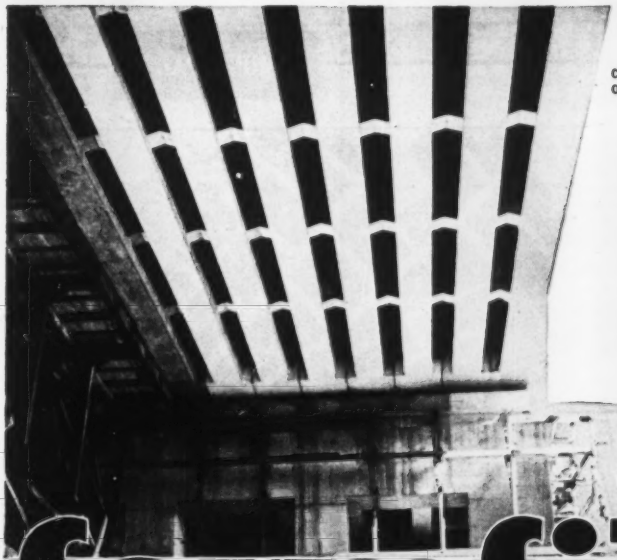
3. Where no retroactive approval is requested, approval will be granted, effective the next payroll period. If the contractor and union want the approval to be made retroactive, they may petition for it.

• **Policies will stick**—CISC said these policies on wage rates and fringe benefits will stick until the end of 1952 "unless wage and price controls are removed or there is a major new development in WSB policies applicable to industry generally other than the allowance of a productivity or improvement factor." The 15-cent formula is intended to include any increase based on higher productivity as well as non-welfare fringes.

(Editor's note: After the 15-cent-increase policy was announced it was said that such increases would be approved only where they were part of a firm contract running until the end of 1952.)

Labor brief . . .

• **Wage hike okeyed**—A new wage agreement providing for 10¢ an hour across-the-board increase for 3,000 employees of the Hydro-Electric Power Commission of Ontario was signed in Toronto. The advance which affects over 2,000 commission men and 860 contractors' employees engaged on the Niagara development program is retroactive to March 1.



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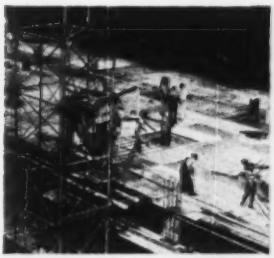

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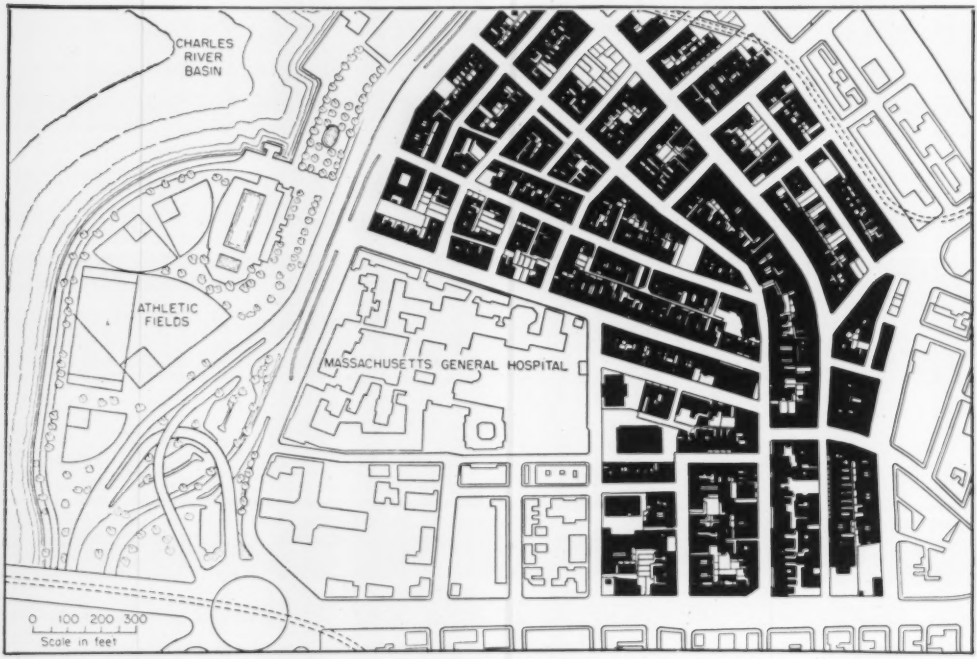


CROWDED HOUSING AREA in the West End of Boston, is virtually in the heart of the city. Its nearness to the business and amusement center helps to justify its high density, but there are indications that such an area is a deficit to the city in terms of cost of city services versus tax revenue.

Boston housing projects reach 10,000 units mark

The size of the job that Boston is doing in redevelopment of its residential areas can only be appreciated by taking a look at some of the figures.

Boston has about 16,000 acres to devote to residential areas. When the General Plan for Boston was developed by the City Planning Board in 1950 it drew on the many preliminary studies (1922-24, 1927-1930, 1933-40, 1940-1946, 1946-49) to decide on what to do with this basic inventory of land.

Of the 16,000 acres, it was decided to conserve (allowing them to remain in substantially the same condition) 11,000 acres. Blighted areas, to be redeveloped for residence, took up 3,000 acres. Vacant land, available for residential treatment, numbered 2,000 acres, but none of it highly desirable.

• **Work done so far**—Using all existing housing agencies (city, state, and federal) the Boston Housing Authority has completed 10,233 dwelling units of all types.

• Under construction are 3,469 units.

• In the planning stage are 2,678 units.

That all this work has not solved any but the most urgent of the cases is seen in the file of applications for public housing units. The file still has 13,000 families awaiting apartment units.

How Boston planned

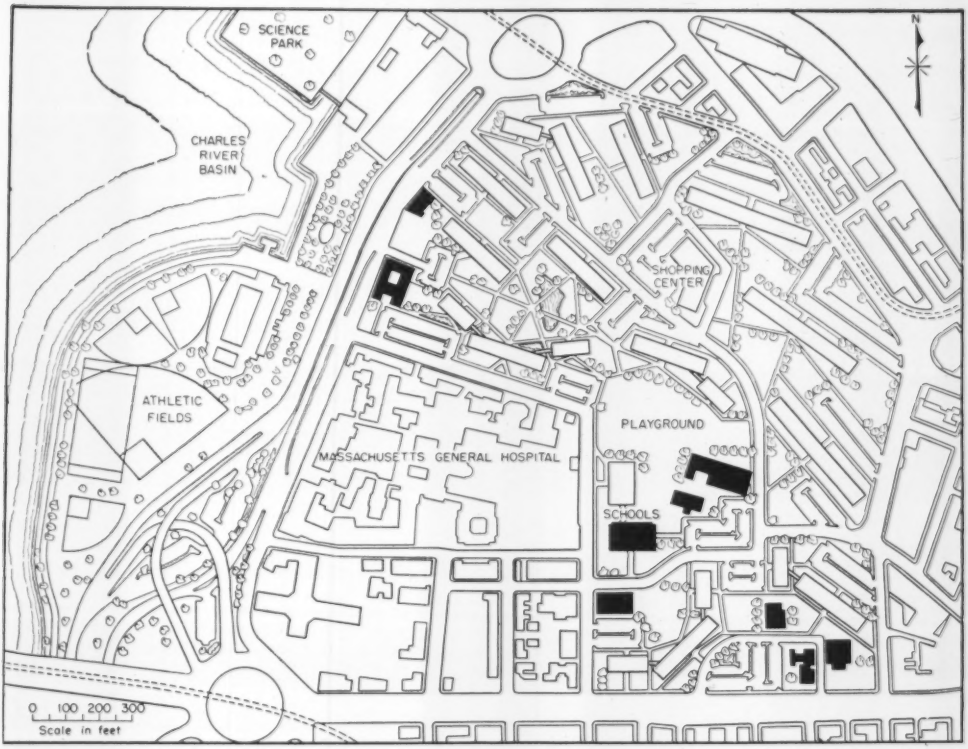
The first step in planning for Boston's residential redevelopment was to make a study of the population of Boston and its probable future composition.

Using the census figures plus studies that have been made by the city and civic organizations certain conclusions were reached:

• "The attractions of Boston as a large urban center have not presented a continuous net out-migration since 1920. Though there are many reasons for this loss, the fact must be faced that Boston cannot meet the rising demand for additional new housing, owing to its lack of attractive vacant sites for development.

• "The future population of Boston, therefore, depends on how much housing can be provided within the city limits according to reasonable standards. It is highly probable that Boston will have fewer people in 1975 than at present.

• "Trends indicate that by 1975 Boston will probably have as many family dwelling units as at present, and perhaps more. The families will be smaller. There will be fewer children and young or middle-aged parents, but more young adults and old people. These changes in composition of pop-



AREA REDEVELOPMENT PLAN utilizes high (6 to 13 story) apartment dwellings. Building coverage is reduced 68%, but with only 40% fewer families. No new streets have been added; only half of the old streets have been retained. This area should be less of a financial burden to the city in the long run.

ulation and families will require some alteration in distribution of housing according to density classifications."

Density classifications—The classifications used were:

- Low densities: up to 11 dwelling units per acre.
- Low medium: 11.1-21 units per acre.
- High medium: 21-40 units per acre.
- High: 40.1 and more units per acre.

It is obvious that single people and childless couples are likely to live in the densely populated areas, and that families having children will seek the more open areas. The choice, of course, is often limited by the amount of money the family can spend on rent.

Bearing in mind the probable change the housing objective should be to replace obsolete dwellings in such a way as gradually to bring the total of housing into line with actual requirements based on population characteristics.

This means centrally located blighted areas should be redeveloped at relatively high densities, while the more remote vacant lands should be built at low densities.

- **Limitations on the plan**—No plan is possible which can redevelop such crowded sections as the North End or West End to house as many people as at present, while adhering to acceptable standards. However, high cost of site acquisition in these areas make imperative the maintenance of relatively high densities.

Carrying out the plan

The basic tool used in planning is the zoning ordinance. The present Boston zoning ordinance is considered obsolete, and the general plan is expected to provide a guide for a more realistic and modern zoning plan.

The Boston Housing Authority which is proceeding with the work of slum clearance is a major factor in the planning of future zones. Together with the Planning Board they will decide on the character of housing planned for such vacant land as exists.

Redevelopment surveyed

A survey of 32 cities and towns that had made most progress, by the end of 1951, in the slum clearance and urban redevelopment program indicates a strong trend toward reuse of redevelopment areas for residential purposes, the Housing and Home Finance Agency announced today.

Survey figures are based on data submitted by the localities involved, and run through December 31, 1951. The 32 localities covered by the survey described 54 areas as projects which involve clearance of slum and blighted areas. Redevelopment patterns of the areas are selected to conform with master plans aimed at bettering the communities in their entirety. Of the 54 areas mentioned in the report, 37 will be predominantly private housing, 3 will be public housing, 6 will be commercial, 8 will be industrial, and one will be for public use.

The report lists 238 localities with capital grant reservations totalling $183,102,223.

(*Continued on next page*)

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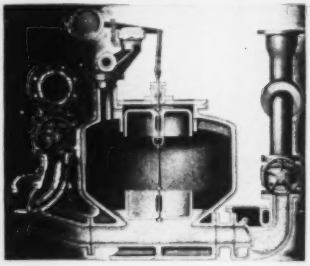

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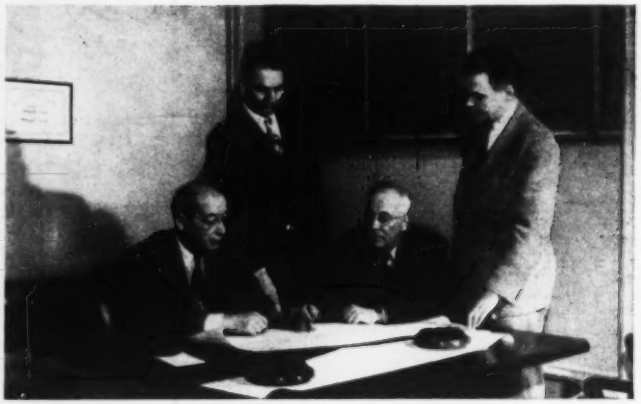


EXPRESSWAY OFFICIALS—(left to right) R. W. Gamble, director, and W. H. Tacke, engineer, for Milwaukee; and L. P. Larkin, project manager, and J. S. Whitney of Ammann & Whitney.

Milwaukee starts expressway system

Milwaukee, Wis., has launched an expressway program which is expected to cost $130 million. The total highway mileage is expected to be 35 mi and the time for construction is planned at 20 years.

The first two sections for which ground has been broken will cost about $13 million. The Wisconsin state highway department has reserved $7.5 million for the federal and state share of the cost of the first two units. The rest of the cost will be borne by the city.

An expressway department of the city is operating under a $5-million bond issue for planning and starting work on the expressway system.

• **First two units**—The first unit to be started is a one mi stretch running north and south along N. 44 St. from W. National Ave., on the north boundary of the suburban village of West Milwaukee, to W. Wisconsin Ave.

The second unit is a 1½-mi east-west route running south of Clybourn St from N. 25th St to the 44th St. expressway.

Work has begun on the first unit. This section will run just east of the $4.2-million stadium Milwaukee County is building. The first contract includes construction of a stadium underpass to carry the 44th St. expressway traffic over a road which enters the stadium grounds, removal of swampy earth from the expressway right-of-way and replacement of it with gravel. The contract amounts to $700,000.

This unit of the expressway is first to be started for three reasons.

• The route covers an area requiring little demolition work.

• It will relieve the overburdened north-south highways in the area.

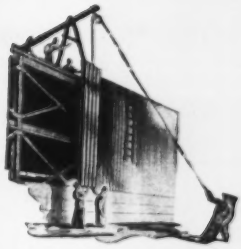
• It will provide access to the stadium.

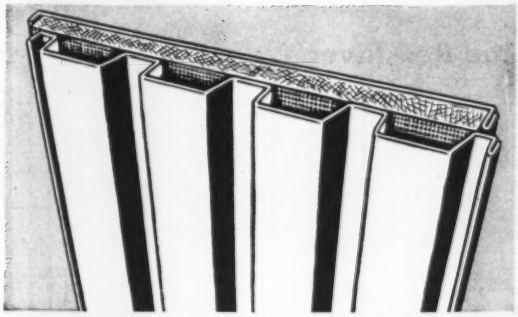
The city still has to acquire more right-of-way.

(Continued on page 39)

OUTER HARBOR BRIDGE—A proposed bridge across the Milwaukee harbor will be tied in to the expressway system.

FOR WALLS...*fast*





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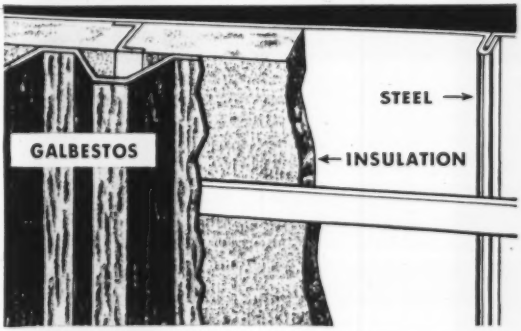
In Steel—6 lbs./sq. ft.	2' wide; lengths up to 25' depending on material used.	Complete panel is 3¼" thick with insulation value superior to a 12" masonry wall with furred plaster. U-factor—.14 in aluminum; .18 in steel.	Steel, aluminum, stainless, Galbestos metal**. *Depending on availability.



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"...And Remember the Red River Valley"

"Reading in 'The Surveyor's Notebook' collection* about Arthur Kidder and Joe Thoma's cadastral surveys reminds me of the time I worked with them on the Oklahoma-Texas boundary dispute," says Wesson Cook, Planning Engineer, The Maryland-National Capital Park and Planning Commission.

"It was 1926. Under decree from the U. S. Supreme Court, our General Land Office party was assigned the job of re-establishing the boundary line at points where the Red River had changed its course—causing considerable dispute over locations of valuable oil lands.

"Along one 100-mile stretch, the old boundary was often submerged under shallow 'oxbow lakes' formed by the change in the Red River channel. It was impossible to mark the boundary or set up tripods.

"Here's how we got stations: We drove posts into the muck, then took the head off an old tripod and attached it to an iron bracket which slid down over the posts, and was fastened with clamp screws. With a triangular platform of heavy boards, we were able to walk around the stations without disturbing the transit.

1926 snapshot shows Cook leveling transit set up on boundary post in Red River.

"One day, when we were working under considerable pressure, I lost the crosshairs of my transit. The work *had* to go on and I was afraid I was sunk. The only thing to do was to catch a spider and have it spin new crosshairs.

At Calvert Mansion, Riverdale, Md., HQ of Maryland-National Capital Park and Planning Commission, Wesson Cook sights through a new Gurley.

"We hunted for one; and, after finding a nice specimen, kept the little devil warm under glass until it had spun enough to help me. The biggest part of the job was getting the web in place. After spending the good part of an afternoon at the tedious job, I had crosshairs again. The work went on.

"This, of course, was before the days of glass reticles, and would never happen today with a Gurley Transit. I've used just about every make; and I'd say it's going to be pretty hard to beat a Gurley for accuracy and ease of adjustment."

***Kidder and Thoma's** account of cadastral surveying with a solar transit, Thoma's remedy for "frozen" tripods and all other stories and surveying tips from the first year's "*Surveyor's Notebook*" series have been gathered into permanent booklet form. Write for your free copy of "*The Surveyor's Notebook.*" You'll find it very helpful.

When writing for your bound copy of "The Surveyor's Notebook" stories, ask also for Bulletin 50. It gives full details on Gurley instruments.

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Municipal . . .

PHILIP J. CRUISE, chairman of NYC housing authority, thinks cut is untimely. (ENR photo)

Engineers warned they will lose fees

The Public Housing Administration program seems certain to be cut drastically from this year's 50,000 units.

What will be the effect of the cut in public housing construction in cities across the nation? Specifically, what will the effect of the proposed cut to 5,000 units a year mean to engineers, architects, contractors and material suppliers?

Philip J. Cruise, chairman of the New York City Housing Authority, claims that architects and engineers will lose $1.5 million in NYCHA fees alone in fiscal 1953. General contractors will lose nearly $200 million in NYCHA contracts.

What happens in NYC will be repeated in other cities across the country, to some extent.

• **Cut in low-rent housing**—For the fiscal year 1953, which begins on June 30, 1952, a great deal of uncertainty exists as to the number of units that can be built.

The House Appropriations Committee recommended 25,000 units, but the House cut that figure to 5,000. The measure is now in the Senate—historically more liberal in housing measures than the House—but what the final program will be is uncertain.

• **How NYC divides its fees**—Cruise points out that whenever the city is authorized to build a low-rent project all sorts of engineering services profit.

He emphasizes that the housing authority itself does not do any of the planning or building of projects.

(Continued on next page)

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Timber is available for the rush job today, just as it was in the last emergency.

Warehouses, hangars, commercial buildings, factories and other structures using heavy timber construction, equipped completely with approved sprinkler protection, have shown a remarkable record of fire safety over many years.

Departing from the old-time idea of "size for strength," there has emerged from the lumber testing laboratories a new material—timber. The building profession now knows that, pound for pound, timber does as much work as other materials, and in its proper fields of use performs an equally satisfactory service, and generally at lower cost.

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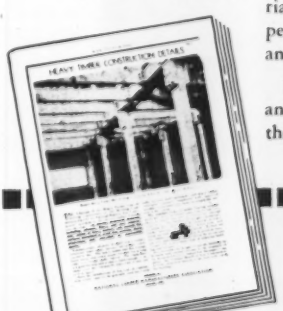

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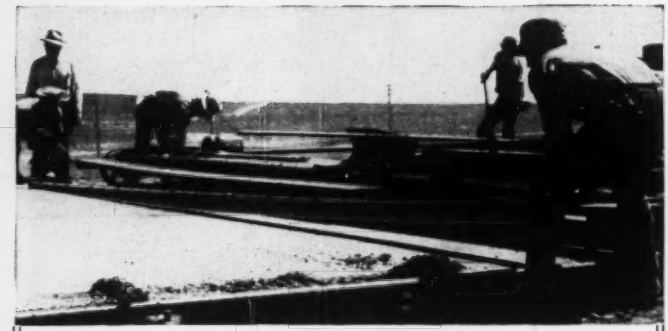

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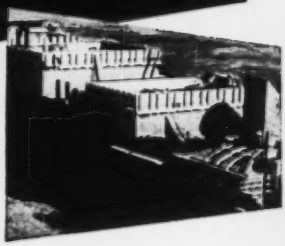

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The approximately $200,000 in fees involved in planning and designing a typical 1,500 unit project in NYC is divided in this manner:

- To designers (architects or engineers)—50%
- To mechanical engineers—20%.
- To structural engineers—13%
- To landscape architects—11%
- Shop drawings—6%

These percentages vary slightly with the changing conditions met on each project.

He also describes the benefits to other engineers in related activities such as: Surveyors, field testers (core and soil boring men) and testing laboratories.

In addition many engineers are employed in administrative capacities as project engineers, inspectors and supervisors.

• **General contract work**—In a typical year the NYCHA built $160 million in low-rent housing and all of this work went to general contractors capable of handling large-sized projects.

To this work must be added the incidental site preparation work, paving and sewers, street lighting and utility installations, which can add as much as $40 million to the cost of the

Cruise also said that as a natural consequence schools sometimes have to be built in the area of the housing project, and here again the general contractor benefits.

• **What's happening in public housing?**—In anticipation of the June 30 cut-off date of the already authorized 50,000 units, local public housing authorities are speeding the awards for 24,000 additional units.

"engineers, architects, should back us . . ."

Close to 26,000 units in 253 projects are already under construction, and bids are being asked for another 26,000 units in 166 projects. Another 2,000 units have been approved by PHA for bid advertisement.

The number of units approved is greater than the 50,000 authorized by Congress, but PHA officials are counting on an attrition rate of 9 or 10% to get them within the limit.

Alexandria, Va., is an example of the attrition expected by government officials. The Alexandria Redevelopment and Housing Authority dropped 46 units from a 194 unit project because of legal difficulties.

Los Angeles files suit against power contractors

The Los Angeles Department of Water Supply and Power has filed suits against contractors on its Owens Gorge Hydroelectric project for $2,128,000.

The action was the second move in a legal battle between the department and the contractors. Owens Tunnel contractors have already filed suit against the department for $466,038 and other companies have suits in preparation.

The hassle has to do with tunnels, penstocks and transmission lines. The department itself is contractor for the three hydro plants on the $42-million project.

Defendants in the water and power suits are Owens Tunnel Contractors; The Stanley H. Koller Co.; Southwest Welding and Manufacturing Co.; Consolidated Western Steel Corp.; The Aluminum Co. of America; and the Joe Bush Service.

• **Complaints**—The city's complaints (*Continued on next page*)

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Operator end-welding a stud to girt through pre-drilled hole in the corrugated sheet. Split-second welding is done with a press of the trigger of the Nelweld gun.

Sectional view showing collar-nut (integral nut and sealing collar) run down on a Nelson threaded stud, making a permanent watertight seal. Collarnuts are furnished with Neoprene or lead collars, and only one size stud is required.

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Full information and Nelweld Engineering Service are available to show the advantages of Nelweld methods as applied to your specific construction problem. Contact your nearest Nelson representative or write Dept. E-1, Lorain, Ohio.

Nelson corrugated asbestos fasteners are distributed nationally by the Philip Carey Mfg. Co. and Johns-Manville . . . Nelson Approved Applicators throughout the country can estimate and install your corrugated roofing and siding with this high quality method . . . Nelweld equipment is readily available for rental or purchase from Authorized Dealers.

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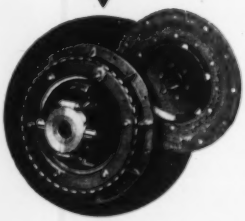

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Municipal . . .

accuse the contractors of responsibility for delays resulting in $1,123,000 worth of damages to the department, for excess costs of $662,000 to complete penstocks on the project, and for $343,000 required to repair defective penstock welds.

The contractors are charging the department with misrepresentation of work to be done, unnecessary interference by department officials, breaches of contract and provision of faulty materials.

The court has been asked in the department suits to determine whether delays on the penstocks were caused by the Koller Co., which contracted to erect them, or by the supplier, Southwest Welding.

A similar decision is asked in the case of the Joe Bush Co., which contracted to string the transmission line from Owens Gorge to Los Angeles, and the Aluminum Co. of America, supplier of the cables.

The project was originally scheduled for completion last year, but as yet no part of it is in operation. Current schedule is for power plant No. 3 to start operating next month, No. 2 two months later. Completion date for No. 1 is still indefinite. Each plant will have a capacity of 37,500 kw.

• **More troubles**—The department is having troubles on a different score in the San Fernando Valley, where homeowners have protested the routing of a proposed transmission line to the department's Valley Steam Plant, now under construction.

The argument there started when condemnation notices were issued. Mass meetings of irate homeowners have been held and the city council has the matter under investigation.

The department contends that it chose the route affecting the fewest homes, and says there are now only 52 homes on the line. It says that putting the line underground would be too expensive. Estimated cost for the line is $11 million.

New York City searching for large fluoridator

Before making a decision on fluoridating its water supply, New York City must solve a number of engineering problems uniquely involved with its great size.

A group of consultants—a team of experts from the American Public Health Association—who had undertaken a study of the city's Health Department, have recommended the addition of fluorides to the water supply.

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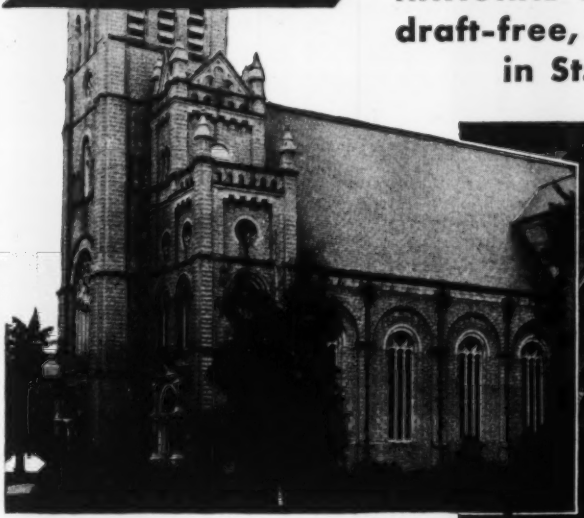

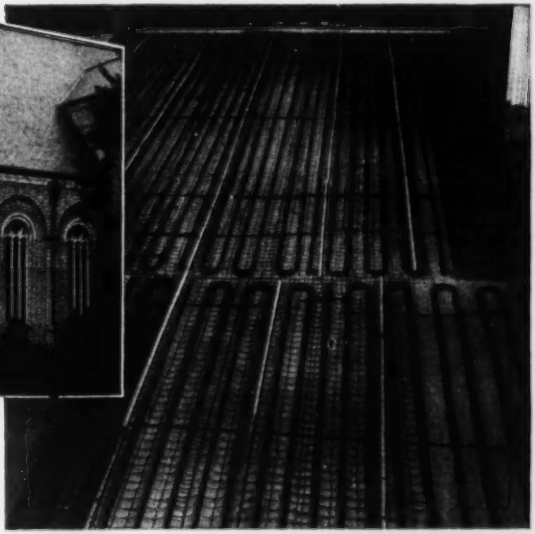

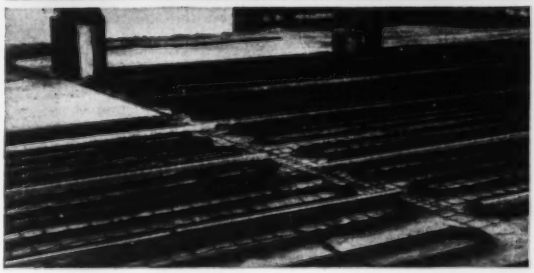

ST. JOHN'S CHURCH in Delphos, Ohio, is a good example of a hard-to-heat building made comfortable with floor radiant heating.

The auditorium in this beautiful old stone church is 135' x 65'. The vaulted ceiling is over 65' high. Here was a natural for radiant heating.

To keep installation costs down, the insulating paper was laid right over the old wood floor. Then came ¼" steel bars. Finally, 10,110 feet of 1¼" National Steel Pipe was tied to the bars and over this a 2" layer of concrete was poured.

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The Atlas Con-Form Panels used in the construction of this bridge in Massachusetts had been used before—and were used again on other jobs.

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To meet all your requirements, Atlas offers four types of Concrete Form Panels—Atlas Con-Form (Hardwood), Atlas Con-Form-X (Exterior Hardwood), B. B. Plyform (Interior) and B. B. Concrete Form (Exterior). Each type is solid 2 sides, S2S, oil-treated, edge-sealed—and available in either 5/8" or 3/4" thicknesses.

While Con-Form and Con-Form-X are slightly higher in cost, they are also the most economical to use. You'll save time and money by specifying them. Your inquiry for further details—addressed to Department 66—will receive a prompt reply.

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"I'm a sucker for challenging dam jobs"

"I'm just a construction superintendent"

Harvey Slocum to direct India dam building

A significant step in India's large dam building program became apparent last week. It was heralded by the departure from the U.S. of M. H. (Harvey) Slocum, famous construction superintendent of such famous American dams as Grand Coulee, Friant, Madden and Bull Shoals, to take on the new Indian job of "director of construction and plant design."

Discussing the title before he left, he characteristically referred to it as "a fancy moniker that doesn't fool me a bit. I'm just a construction superintendent, and that's what it means. My contract says I'm to get India's dam program rolling. It also says I'm the boss; which is why I signed it."

Specifically Mr. Slocum's contract is with the government of Punjab State, and his initial task will be to push the construction of Bhakra Dam, often referred to as India's "Hoover Dam" and described in these pages March 27, 1952, p. 79. But it is also a part of the arrangement that the India government, through its Central Waterpower, Irrigation and Navigation Commission, can use his services on such dams as Hiracud (ENR June 7, 1951, p. 35), Kosi (ENR Jan. 4, 1951, p. 34) and any others. The Damodar Valley Authority and its "TVA scheme" (ENR May 24, 1951, p. 33) can also come under his advisement by agreement with the Punjab government.

Bhakra Dam, a 5 million cu yd, 680 ft high structure on the Sutlej River in northwest India, is in the construction stage, but moving at a slow pace because of a lack of positive and informed direction for a job of unprecedented type and magnitude for that country. The decision to seek the aid of a top U.S. dam builder—and give him a 10-year contract—is predicated on a realization of this fact.

• **Long Record**—That Harvey Slocum is such a dam builder is well known from his record. As project manager for the contractor combine known as Ozark Dam Constructors, he has just completed Bull Shoals Dam in Arkansas, a Corps of Engineers flood control job on the White River. Before that he was in charge of construction on the Bureau of Reclamation's Friant Dam in California and on the Army's Madden Dam in Panama. Slocum's biggest job was that of general superintendent for M.W.A.K. in building Grand Coulee Dam. But, for 20 years before he had a national reputation, he was in responsible charge of construction jobs all over the West. He started out as a structural iron worker when he was 16 years old. Now 63 or 64, he

(Continued on next page)

STOP
THAT LEAK
FOR GOOD

9 SIKA COMPOUNDS TO END REPAIR PROBLEMS ON CONCRETE AND MASONRY

FOR PRESSURE LEAKS
(SIKA No. 2, SIKA No. 4A) Leaks are easily sealed on the exposed side with quick-setting SIKA mortar. It is not necessary to relieve pressure. SIKA No. 2 is used against heavy pressure or bleeders, SIKA No. 4A against seepage or moderate pressure.

FOR JOINTS OR CRACKS
(IGAS JOINT SEALER, SIKA CAULKING) IGAS JOINT SEALER seals even against pressure and continual movement. Will not sag, crack, dry out, become brittle or lose adhesion. In work above grade, SIKA CAULKING is used where highest resistance to atmospheric change is desired.

FOR EXTERIOR REPAIRS
(SIKA-KOTE, SIKA TRANSPARENTS) SIKA-KOTE, a protective and decorative coating in 9 colors and white, prevents moisture penetration on concrete and masonry structures. SIKA TRANSPARENTS render brick structures water-repellent and preserve their appearance.

FOR NON-LEAKING SURFACES
(SIKACRETE, SIKA-KOTE) Water-resistant SIKACRETE mortar is used wherever cement-coat work is indicated. Economical, easy to apply SIKA-KOTE prevents penetration of ground-moisture.

FOR GUNITING OR PRESSURE GROUTING
(SIGUNIT, SIKA No. 4, PLASTIMENT) For quick work against leaks or in tidal areas, SIGUNIT in mortar prevents washouts. SIKA No. 4 (GROUT-SIKA) accelerates set, increases cohesion of mortar and adhesion of grout to rock.

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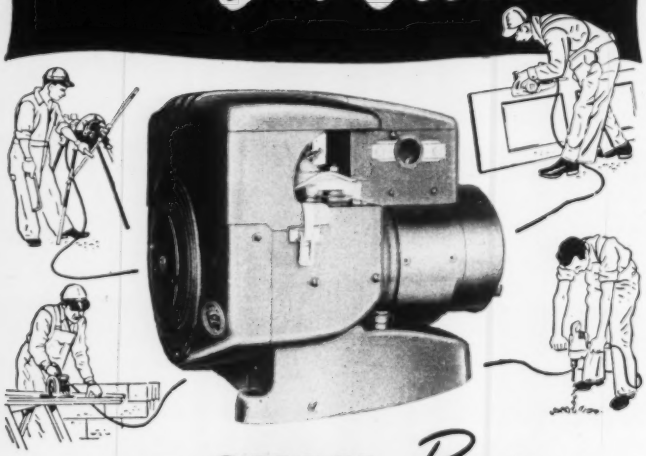

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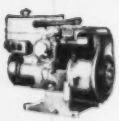
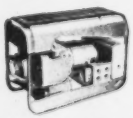


ONE-CYLINDER MODELS—Lightweight, heavy-duty air-cooled. 400 to 1,000 watts A.C.—750 to 1,500 watts D.C.



TWO-CYLINDER MODELS—Horizontally-opposed air-cooled, 1,500 and 3,000 watts A.C.—2,000 and 5,000 watts D.C.

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looks 10 years younger and, his associates say, has the drive and toughness to match.

"Some of my friends think I'm crazy to take on this job at my age. What's age got to do with it? A man's as old as he feels, and I never felt younger. Anyway, I'm a sucker for challenging dam jobs—and this Bhakra's a real challenge. It's big, it's difficult, and the Indian's want it and need it more than any one thing on their big list of dreams. I'm just sentimental enough to want to help them make it come true."

Four of Slocum's associates went to India with him—E. C. Shipp as construction supervisor, Joe Estes as mechanical supervisor, C. H. Norris as excavation supervisor and Einar Skinnerland as plant design engineer. All were on Bull Shoals Dam, although Skinnerland was most recently at Detroit Dam in Oregon.

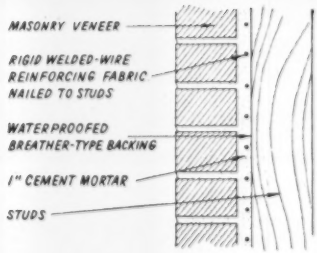
Other Americans will follow, although Slocum is determined to keep the total number under 50, and hopes that he can get along with 25. All will have separate contracts with Punjab State and will remain in India for the duration. Slocum's contract, however, stipulates that he must be in India only a part of each year. He estimates that his stays during the first year may add up to 9 months, but that this will be reduced to about 4 months per year thereafter.

Transcontinental railway

A 48-mi stretch of track in Brazil's Matto Grosso state has completed the Brazilian section of the trans-continental railway which eventually will run from Sao Paulo near the Atlantic to Arica, Chile. The new link connects Porto Esperanca with Corumba which lies north of it on the Rio Paraguay at the Brazilian-Bolivian border. Total length of the Sao Paulo-Corumba line is 1240 miles, more than half of it across the wilds of Matto Grosso. The new line runs through the area of the Urcum iron and manganese ore deposits which U. S. Steel hopes to develop through Export-Import Bank.

• **Big power project**—A 1,000,000-hp project to link the four corners of the province is to be started in Eastern Quebec. Premier Maurice Duplessis says the Quebec Hydro Commission will begin preliminary work on the Bersimis River, on the St. Lawrence River north shore, within the next two years. Producing 55 percent of the power output, Quebec will be criss-crossed by various power networks on completion of the Bersimis Dam.

(*Continued on page 48*)



Note from the drawing above and the photo below how Steeltex bonds a veneer wall together as a strong single unit and eliminates the need for standard sheathing.

500 Families Get Added Fire Protection with Steeltex for Masonry Veneer

One very good reason for specifying *Steeltex for Masonry Veneer* on the extensive row-type Oglethorpe Apartments in Atlanta, Georgia was the added fire protection it offered, according to James C. Wise, architect for the development. Said architect Wise, "A highly fire-resistant wall was achieved by the solid, steel-reinforced, mortar slab.

"Another excellent reason," said Mr. Wise, "lies in the fact that Steeltex rigidly ties the brick veneer and frame together for mutual protection against later settling and distortion. In the Oglethorpe Apartments, I have noted that there has been no plaster cracking or breakaway."

To take advantage of the stronger, safer walls Steeltex brings to your veneer construction, see our catalog data in Sweets' or write for Catalog DS132, Dept. ENR, Pittsburgh Steel Products Company, Grant Building, Pittsburgh 30, Pennsylvania.

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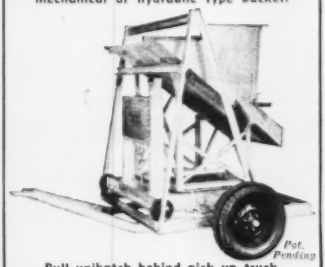

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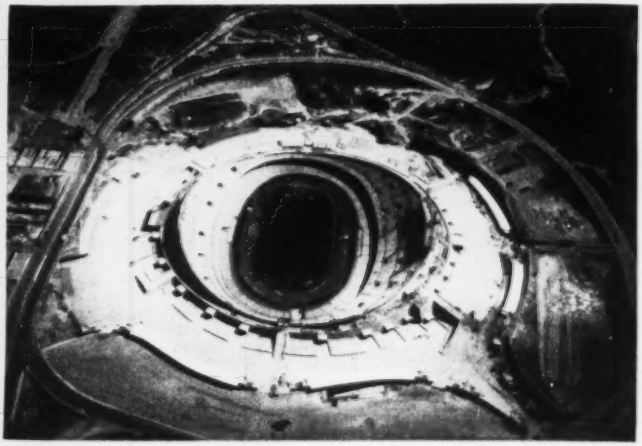


FOR 140,000 SPECTATORS—When completely finished in 1956, it is expected that this stadium will seat 140,000—Cia Mexicano Arofoto.

Mexico, prospective host to thousands, . . .

builds great auditorium and stadium

McGraw-Hill World News

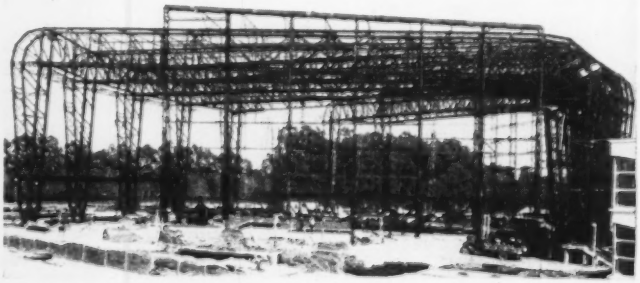
Structural engineers in Mexico believe that the main steel spans for the $4.5 million municipal auditorium now being constructed in Mexico City are the longest welded frames in the world.

Fabricated of Mexican steel by a Mexican company, Macomber de Mexico, they have a clear span of 328 ft. Girders and columns of the frames are welded trusses made largely of ⅜ and ¾-in. steel plates. The steel frame alone cost $1.8 million.

The new auditorium—a pie-shaped building in plan—is being erected in the city's fashionable Chapultepec Park and will have a capacity for 18,500 persons. It was an important factor in obtaining for Mexico two international conventions—the Rotary International in May and the Lions International in June of this year. Therefore, the project has been a rush job. At this time the steel work is finished and the walls and roof are being placed. Construction work will be halted temporarily while the two international conventions are being held inside on temporary bleachers.

• **The structural frame**—The building's structural frame consists of nine rigid frames with spans of 295 ft at

(*Continued on page 52*)



ALL STEEL SPANS IN PLACE—The Municipal Auditorium, to seat 18,500, will be the largest in Mexico. The building will cost $4,500,000.

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Many thousands of dollars were saved by the modern *DRIVE-IT* powder operated fastening method used on the Park LaBrea project in Los Angeles. Over 750,000 drive pins fastened metal lath to concrete ceilings and floors from which wall partitions were secured.

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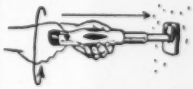

DRIVE-IT cannot be discharged accidentally due to the push and turn sequence. This, plus the large safety pad makes *DRIVE-IT* triple safe.

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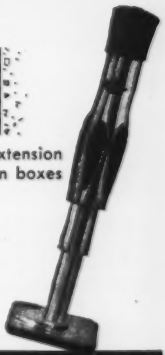

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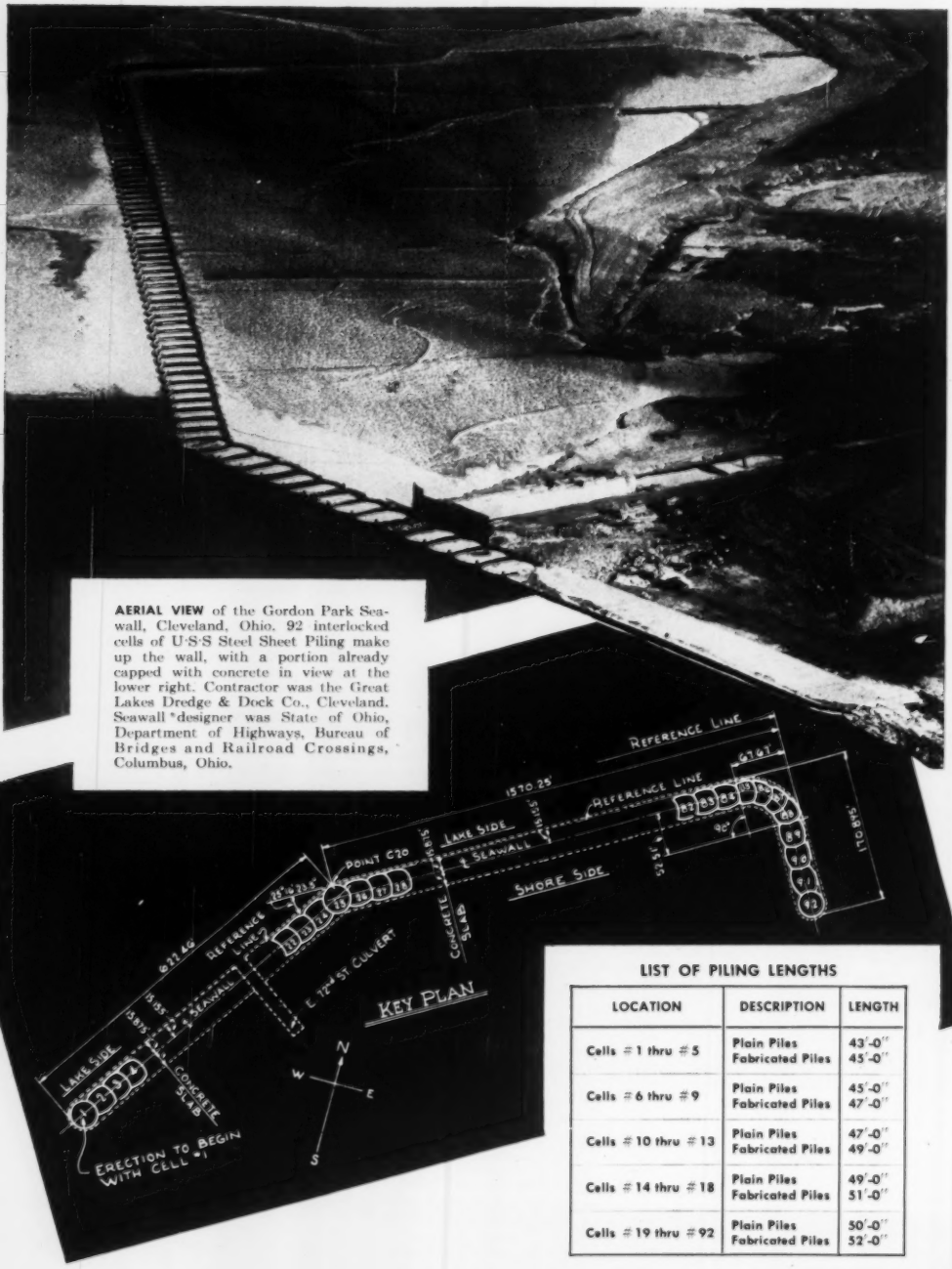
92 cells of U·S·S Steel



AERIAL VIEW of the Gordon Park Seawall, Cleveland, Ohio. 92 interlocked cells of U·S·S Steel Sheet Piling make up the wall, with a portion already capped with concrete in view at the lower right. Contractor was the Great Lakes Dredge & Dock Co., Cleveland. Seawall designer was State of Ohio, Department of Highways, Bureau of Bridges and Railroad Crossings, Columbus, Ohio.

LIST OF PILING LENGTHS

LOCATION	DESCRIPTION	LENGTH
Cells # 1 thru # 5	Plain Piles Fabricated Piles	43'-0" 45'-0"
Cells # 6 thru # 9	Plain Piles Fabricated Piles	45'-0" 47'-0"
Cells # 10 thru # 13	Plain Piles Fabricated Piles	47'-0" 49'-0"
Cells # 14 thru # 18	Plain Piles Fabricated Piles	49'-0" 51'-0"
Cells # 19 thru # 92	Plain Piles Fabricated Piles	50'-0" 52'-0"

Sheet Piling

FORM NEW GORDON PARK SEAWALL AT CLEVELAND

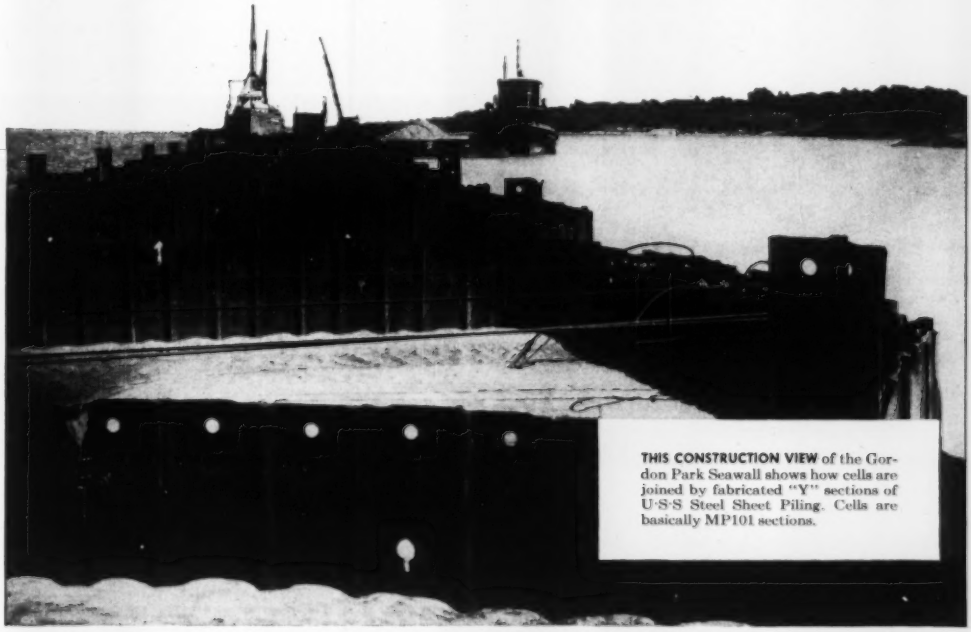
TO protect Cleveland's Lake Boulevard from the frequent and severe storms that lash Lake Erie, a new seawall is being constructed in the Gordon Park area. It is made up of 92 cells of U·S·S Steel Sheet Piling to be capped with concrete.

Ground level is exceptionally low at this point and soil conditions vary from sandy clay to stiff clay. The U·S·S Steel Sheet Piling, in average lengths of 49 feet, is being driven to a penetration depth of 20 feet.

The seawall, approximately one-half mile in length, is using a total of 4,440 tons of MP101 piling sections, along with 240 tons of fabricated "Y" piling sections.

Wherever you want to keep earth and water in place, U·S·S Steel Sheet Piling offers you the double advantages of speed and economy. It is an easily-installed construction that is strong, rugged and lasting. It is a finished product, ready for use as shipped, and its installation is less dependent on weather conditions than other materials.

U·S·S Steel Sheet Piling forms a continuous wall of rugged, interlocked steel sections—an invaluable construction medium for dams and dikes, in wharves, slips, seawalls, bridge pier retaining walls and railroad and highway abutments. Our engineers will be glad to discuss its possibilities with you.



THIS CONSTRUCTION VIEW of the Gordon Park Seawall shows how cells are joined by fabricated "Y" sections of U·S·S Steel Sheet Piling. Cells are basically MP101 sections.

UNITED STATES STEEL COMPANY, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

U·S·S STEEL SHEET PILING

2-486

UNITED STATES STEEL

Now they're turning
OCEANS into MONEY

Imagine the possibilities of using the ocean's unlimited resources as your supply of raw material. That is just what's being done today. It's the result of combining imagination and modern processing equipment designed by Dorr.

In this case, the operation is one of extracting magnesia from seawater at the Cape May, N. J. plant of the Northwest Magnesite Co. Here, the jobs of preliminary treatment of seawater and subsequent thickening and washing of magnesium hydrate are carried out in Dorr thickeners. As a matter of fact, at every major seawater magnesia operation in the U.S.A., these basic processing steps are handled by Dorr equipment.

It's a good plan to talk to Dorr about your new ideas. Whenever a process involves the separation of finely divided solids in suspension, the use of ion-exchange, or fluid techniques, the chances are we can help you turn your imagination into money.

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International . . .

the edges of the structure and 328 ft at the center. The rigid frames are 115 ft high. A light-gage steel deck is being put on. Altogether, some 5,000 tons of steel are being used. Work on the steelwork was started in June, 1951, and finished in February of this year.

The general manager of Macomber de Mexico is Frederico Kaufer. The chief engineer on the project is Guillermo Salazar Polanco, assisted by Oscar de Buen and Luis Correa. Welding was supervised by William Bledsoe, and erection by Carlos Maldonardo.

• **World's largest stadium?**—Construction has been completed on the first stage of the University of Mexico's new Olympic stadium and it will be placed in service in the very near future.

Built as part of the new university of Mexico campus, the new stadium will hold 140,000 spectators when finished. It was designed to be built in stages, and at the present will accommodate only 100,000 spectators.

It is the largest stadium in Mexico at the moment, and, when it is finished before 1956, it will be the largest stadium in the world, according to engineers building it. It has been planned with the idea of making a bid for the 1956 Olympic games to be held in Mexico City.

The stadium, which is nearly 50% below ground level, was built on the 2,000-year-old lava bed outside Mexico City which is the site of the new university campus. Builders went right through some 30-40 ft of lava rock to build it. Of reinforced concrete construction, special attention was given to traffic problems and two main boulevards, both linking up with different traffic arteries to the center of the city, will provide access.

Puerto Rico public works budgeted at $16 million

In his 1952–53 budget message just submitted to the Legislative Assembly, Governor Luis M. Marin of Puerto Rico recommends public works expenditures as follows:

Schools	$4,234,000
Primary and secondary roads	4,000,000
Municipal roads	1,700,000
Hospitals	500,000

• **Other recommendations**—The governor also recommended appropriations of $19,415,000 for public enterprises such as the transportation authority, Industrial Development Co., Aqueduct and Sewer Authority, and for rural electrification and public housing.

South African airport is at El 6,000 ft

The main runway at Jan Smuts Airport, 6,000 ft above sea level, near Johannesburg, has now been completed. It is 10,500 ft long, 200 ft wide and capable of taking aircraft up to 135,000 lb wheel load. Two subsidiary runways will be 8,250 ft long with the same width as the main runway.

The airport covers 2,130 acres. Its construction involved the handling of more than 5,000,000 cu yd of earth and the building of more than 13 miles of drains.

Its eventual cost will be more than $17,000,000.

Reclamation officer to help Pakistan

C. R. Maierhofer, head of the Bureau of Reclamation office of drainage and ground-water engineering in Denver, has left for Pakistan to help study the possibility of augmenting the food supply by reclaiming water-logged lands in that country. Secretary of the Interior Oscar L. Chapman has announced he will serve for two months as adviser to the United States Director of Technical Cooperation in Pakistan under the President's Point Four Program. "We are glad to share with our Pakistan world-neighbors," he said, "the experience our engineers have acquired in the solution of drainage and ground-water problems on the more than 100 federal reclamation projects in our half-century of water resource conservation work."

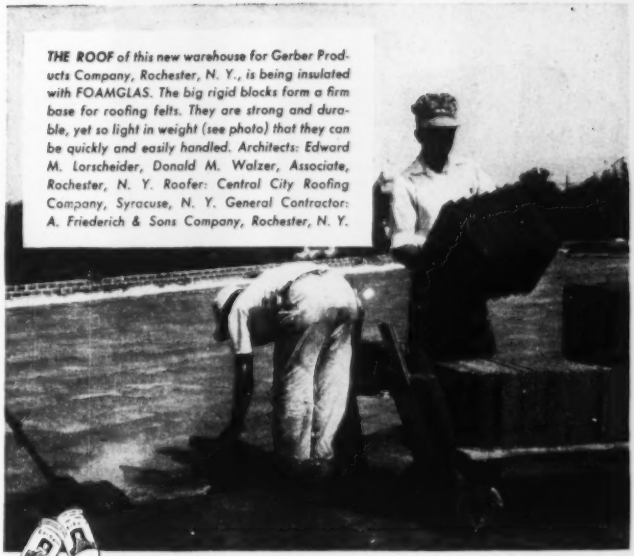
Ecuador will construct quake-resistant houses

More than 4,500 single-family houses are to be built by Ecuador in its program of housing reconstruction in the areas of that country which were devastated by the earthquake of Aug. 5, 1949. The Export-Import Bank has approved a credit of $800,000 to assist in the work.

The Ecuadorian government, with technical and financial assistance provided by the Pan-American Union, has made geological studies which serve as the basis for the location of the various housing projects. The government, with the aid of U. S. technicians, has also adopted a building code providing for minimum standards of earthquake-resistant construction.

It is planned to sell the new houses to victims of the earthquake on a 20-year purchase plan without down payment.

(Continued on next page)



THE ROOF of this new warehouse for Gerber Products Company, Rochester, N. Y., is being insulated with FOAMGLAS. The big rigid blocks form a firm base for roofing felts. They are strong and durable, yet so light in weight (see photo) that they can be quickly and easily handled. Architects: Edward M. Lorscheider, Donald M. Walzer, Associate, Rochester, N. Y. Roofer: Central City Roofing Company, Syracuse, N. Y. General Contractor: A. Friederich & Sons Company, Rochester, N. Y.

Incubating baby foods with FOAMGLAS —the cellular glass insulation

● Precise temperature control is a vital factor in the care of tiny babies—and in the processing and storing of their prepared foods. So the use of FOAMGLAS in this prominent baby food plant is important evidence of its insulating efficiency.

In walls and under floors, on roofs and ceilings, for all types of normal and low temperature installations, FOAMGLAS is helping to maintain desired temperatures. Its high resistance to moisture, fumes and other destructive elements means freedom from costly maintenance, repairs and replacements.

Because of its cellular glass structure, FOAMGLAS not only minimizes heat flow when first installed, but also *retains* its original insulating ability throughout many long years of cost-free service. That is why so many users have found FOAMGLAS the most effective and economical insulation.

Get complete information now. Just send in the coupon for a sample of FOAMGLAS and free copies of our latest booklets.

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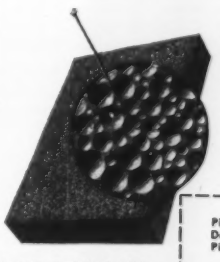

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AMERICA'S STANDARD FOR OVER 30 YEARS

International Briefs

• **A ready-made town**—A predesigned town, complete with roads, sewers and lighting facilities, will be built in northern British Columbia a few miles south of the Yukon border. The town will be supported by mining operations at one of Canada's newest and highest-grade asbestos deposits. It will be built by Cassiar Asbestos Corp, Ltd. of Toronto, a subsidiary of Conwest Exploration Co, which is planning two mills at McDame Creek to turn out asbestos. Production will be trucked to the White Pass & Yukon Railway and from the coast will be shipped to world markets.

• **Orinoco River dredging**—McWilliams Overseas Dredging Co. of New Orleans and Gahagan Overseas Dredging Co. of New York have contracted to deepen the channel of the Orinoco River bed to permit movement of large iron ore carriers. A large hydraulic dredge and related machinery was towed from New Orleans to Venezuela and is now at work nearly 200 miles up the river.

• **Australian construction contracts**—Several Australian cities, unable to carry on their maintenance and development plans, are considering the letting of contracts to experienced American and other foreign firms. For example, Melbourne has this in mind in connection with the construction of a subway, parking stations and hotels at an estimated cost of $14,000,000.

• **More water for Bogota**—The consulting engineering firm of Buck, Seifert and Jost, New York City, has been retained by Bogota, Colombia, to develop plans for additional municipal water supply. After field investigations and studies, the firm will recommend a program to include intake works, a pumping station, filtration plant, and connecting plant lines. The firm will also design the required construction.

• **Austro-German power**—An agreement on the construction of a hydroelectric power station on the Danube River by the Austrian Electricity Board, Vienna, and the German Rhein-Main-Donau, Ltd, Munich, was signed Feb 14. The plant is to be erected at Jochenstein, upper Austria in the U. S. Zone, a few miles from the German frontier. It will have an annual power output of 950 million kwh, to be divided equally between the two countries, as will also be the construction costs estimated at $45 million. Construction will take about four years.

BIGGER PAYLOADS with 3-6 Yard Trucks

using Gar Wood

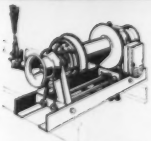
MS1 DUMP BODIES and D8R HOISTS

Gar Wood D8R Hoist and MS1 Body get maximum payload from 3- to 6-yd. trucks because they make it unnecessary to adapt a heavy duty hoist and body (that weigh more and cost more) for these smaller trucks in the heavy duty class.

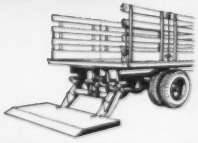
Gar Wood MS1 Bodies are built for long satisfactory life under tough operating conditions. Liberal use of V- and box-type bracing and stiffening members assures utmost in strength with minimum weight. Because of improved D8R Hoist design, the lifting point is placed farther forward which substantially reduces danger of bending body longitudinals.

There are other Gar Wood medium duty and heavy duty dump bodies and hoists to meet different operating conditions. Write for descriptive bulletin . . . use the coupon below—today.

Gar Wood Load Packer compresses a bigger load of refuse—reduces collection costs. Bulletin M60.



Gar Wood Winches do more work with greater safety and last longer. Bulletin WC-204.



Gar Wood Elevating End-Gate cuts pick up and delivery costs. Bulletin L-101.

52-8

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TRUCK EQUIPMENT: Dump Truck Bodies & Hoists, Winches & Cranes, Refuse Collection Bodies, Elevating End-Gates. CONSTRUCTION EQUIPMENT: Excavators, Scrapers, Dozers, Ditchers, Spreaders, Finegraders, Truck-Mounted Road Graders

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Executive Offices, 36219 Main St., Wayne, Mich.

Please send me Bulletin HB304 explaining why I can get bigger payloads with Gar Wood MS1 body and D8R hoist; also the bulletins checked below.

☐ Load-Packer Bulletin M60 ☐ Winch Bulletin WC-204
☐ End-Gate Bulletin L-101

Name_____ Title_____

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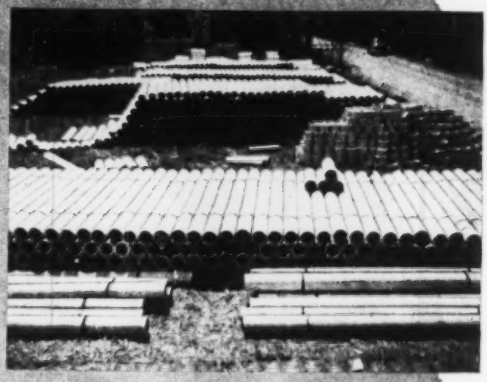

Storage of "Century" Pipe and "Century" Simplex Couplings is shown here on site in New England preparatory to installation.

"Century" Pipe awaiting installation.

K&M ASBESTOS ROPE

For yarning bell and spigot joints will not promote the breeding of bacteria. Write for details.

WRITE FOR FREE BOOKLET, "Mains without Maintenance". Gives valuable data, specifications, and reference material for anyone interested in water main pipes.

K&M built in asbestos

"CENTURY"

ASBESTOS-CEMENT PIPE

gives a New England town 19 miles of trouble-free water mains

Thus, another community is added to the growing and already large number of places in every State where this modern water main has been adopted.

Right from the start this modern water system provides economical operation by the relatively low cost of installation and reduced carrying charges plus the advantages inherent in the pipe itself.

Made of two practically indestructible materials, asbestos fiber and portland cement, "Century" Pipe is strong and durable. It is highly resistant to external corrosion and internal corrosion (tuberculation) cannot take place due to its non-metallic composition. The permanently smooth inner surface guarantees continuous flow and minimum pumping costs

It will pay you to investigate the many cost saving features of "Century" Asbestos-Cement Pipe.

Nature made Asbestos . . .
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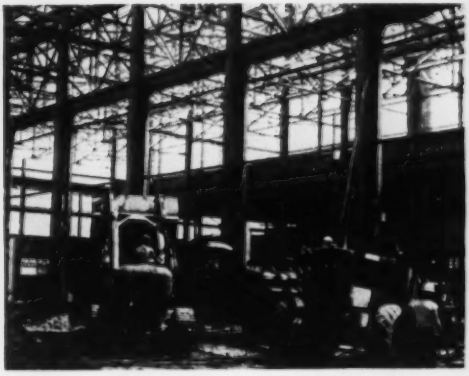
"See us at Booths No. 13 and 14, American Water Works Association Convention, Kansas City, Missouri, May 4-9, 1952"

BUILDING MATERIALS for a new Ford Motor Co. plant in Cleveland, Ohio, were hauled on a farm trailer.



FINAL GRADING continued after the structural steel frame was erected.

Powered equipment pays off in erecting a big factory

CONTRACTORS on the $80 million Ford Motor Co. plant at Cleveland, Ohio, fought a tough battle to maintain their construction schedule. The project was immense—the two main buildings, a foundry and an engine factory, both one-story high, have about 1,000,000 sq ft apiece under a single roof. Long hauls were required for delivering building materials to various points on the site, and large areas of ground had to be graded.

To lick these problems, the contractors made extensive use of powered equipment. Because of the size of the buildings, this not only saved time but also proved to be economical.

The plant is located at the western edge of the city, near the Cleveland airport. It consists of the engine building, the foundry, a boiler house and a personnel building. The engine building is 905 ft square in plan. The foundry is 1,390 ft long by 540 ft wide for two-thirds its length; the remainder is 660 ft wide.

• **Innovations**—The solution to the problem of delivering building materials to points where they were needed proved to be surprisingly simple. The contractor used inexpensive farm trailers. Motive power was supplied by four-wheel pneumatic-tired tractors.

Whenever possible, loading and unloading was done with powered equipment.

The problem of painting the tremendous areas of exposed structural steel, particularly the intricate network in the steel roof trusses, also proved to have a novel, but simple solution. Paint was sprayed on the steelwork. But the job was done by a man walking about on the ground floor with a 20-ft extension rod.

Powered equipment for grading the site was conventional. Foundations are bell-type concrete caissons; holes for these were bored with an auger-like powered tool mounted on the rear of a truck or with a crane-mounted cylindrical bucket with adjustable cutters. Also Gradalls, hydraulically operated excavators, did the digging for footings and machine foundations.

Both the foundry and the engine building have 8-in. thick reinforced concrete floor slabs. Concrete was mixed in transit and cast in 20-ft wide lanes. Floors are finished with brick where machinery may have to be relocated and with smooth-surfaced concrete in aisles.

Walls in the engine building are face brick backed up with unglazed tile to a height of about 9 ft. Above are steel windows topped by a shallow strip of metal siding. The roof is a metal deck, with 1½ in. of insulation and 20-year bonded roofing.

Walls in the foundry are cast-in-place reinforced concrete up to sill height. The roof deck is made of concrete plank.

• **Designers and builders**—Fairbrothers and Miehls, of Detroit, Mich., were architect-engineers.

Hunkin-Conkey Construction Co. held the contract for the substructure of the engine plant and Johnson, Drake & Piper, Inc., the contract for the substructure of the foundry. H. K. Ferguson Co. was the contractor for the superstructure of both buildings.

PAINTER on the ground floor used a 20-ft rod to spray paint on the roof trusses.

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INTERNATIONAL TRUCKS

"Standard of the Highway"

International six-wheel models are available in GVW ratings from 22,000 to 70,000 lbs.

SELF-PROPELLED widening machine—made from converted stone-spreader—lays over 8,000 ft of 3-ft wide by 9-in. thick plant-mixed concrete in 8 hr. Elimination of side forms saves over $1,000 per mile.

Illinois will save a million dollars this year by widening pavement without side forms

ILLINOIS HIGHWAY ENGINEERS are convinced that no side forms are needed for widening their old pavements with portland cement concrete.

This is no snap judgment, but a decision based on three years of developing and perfecting a method of widening without forms—which stands to save the state highway department $1 million or more this year.

This so-called new method of "form-less" widening has two important advantages: "It permits construction cost reductions ranging from $1,000 to $1,500 per mile," says Robert H. Tittle, engineer of construction, "and the completion of such projects in about half the time required under the old side-form method."

• **Big 1952 widening program**—The Illinois State Highway Department's 1952 construction and reconstruction program includes the widening of 950 miles of old concrete pavement on its primary system, prior to resurfacing.

With an average per-mile savings of over $1,000 by eliminating side forms, the total savings run over $1 million.

Illinois makes no claims to being the originator of the form-less method—other states also have found it to be one answer in keeping down the cost of pavement rehabilitation. "But it is a major factor in Illinois' highway program," says Frank N. Barker, chief highway engineer, "since widening and rehabilitation of existing pavements in the state's 12,000-mile primary system is one of the foremost current needs."

• **The old method**—The old method of pavement widening was slow, laborious and costly. Basically, it entailed placing steel side forms along the outer edge of a trench previously excavated to receive the concrete. Then the space between side forms and old pavement, was filled with concrete either from a concrete mixer traveling on the pavement, or from transit-mix trucks.

The forms, laid in 10-ft lengths and weighing from 150 to 200 lb each, usually were left in place for 12 hours after pouring the concrete. Setting the forms; pinning them to the bottom of the trench; removing, cleaning and resetting them involved considerable work; while any sizeable contract necessitated a considerable investment in forms.

Under this old system contractors considered 5,000 ft of 2-ft widening laid along one side of a pavement was a good 10-hr day's average. Today, with the forms eliminated, it is not unusual to complete 9,000-ft of such widening in a 10-hr shift.

• **Three-way development**—The evolution of pavement widening from the side-form to the form-less method in Illinois was a joint undertaking by highway engineers, equipment manufacturers and contractors. As the engineers became convinced that forms could be eliminated, manufacturers developed and perfected equipment to do the job, while contractors introduced innovations that saved money.

• **First tried in 1949**—The highway department first tried pavement-widening without forms in 1949 on a 10-mile project on State 92 west of Mendota.

The engineers were somewhat skeptical at first as to whether a uniform width and depth of slab—especially along the outer edge—could be obtained without using the usual steel side forms. But, as soon as the work got underway they began checking the width and depth of the new concrete at 200-ft intervals. Results: They found that the strip of new pavement had a uniform width of 2 ft, its outside was vertical, and there was little or no tendency to slump.

The encouraging results of the experimental widening during 1949, resulted in 73 miles of old primary highway pavement being widened during 1950. Last year a total of 283 miles were widened, without using side forms.

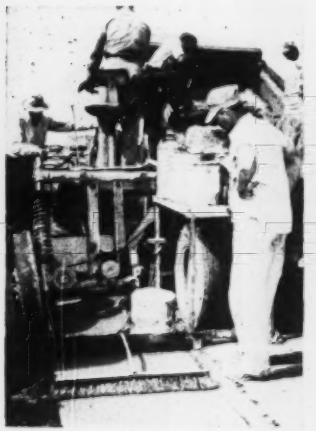
• **The new method**—The form-less method of widening is accomplished in a single operation, once the trench has been prepared. There are two general procedures:

In one, a caravan of equipment travels along the old pavement mixing and placing the concrete in a continuous operation. Leading the parade is a concrete paver, followed by a self-propelled concrete-widening machine and a tank truck containing water for mixing the concrete.

The mixer is served by a fleet of dry-batch trucks which haul the aggregates and cement from a central batching plant. The mixer discharges into the concrete widening machine which places the concrete in the trench.

In the other procedure wet batches of concrete are trucked from a central batching and mixing plant, direct to a self-propelled concrete-widening ma-

PAVING CARAVAN on some widening jobs is made up of small paver, self-propelled concrete widening machine and water supply tank. Aggregates and cement are dry-batched from central plant to paver.



VERSATILE MACHINES perform the entire job in one continuous operation.

ENDLESS BELT feeds fresh concrete from hopper to bottomless box.

SELF-CLEANING smooth-wheel rollers compact bottom of trench preparatory to receiving concrete.

WIDENED PAVEMENT is cured with curing compound by hand-propelled, pressurized tank with hooded spray-bar.

chine. In some instances the concrete is delivered from batching plant to the job by transit mix trucks.

• **Placing the concrete**—The concrete-widening machines developed for both methods of widening operate on the same principles. One popular model is a converted pneumatic-tired machine, normally used to spread stone or gravel. Concrete is dumped into a wide hopper at the front of the widening machine.

The bottom of the hopper is formed by a conveyor belt operating transversely to the center line of roadway. It feeds the concrete into an open-bottom steel box mounted on the left side of the machine.

The steel box is about 4 ft long and either 2-, 3- or 4-ft wide, depending on the width of pavement widening. It slides along in the trench, serving as a temporary form for the fresh concrete.

A wing-plate on the outside of the box pulls fresh dirt in against the edge of the widened pavement, while a pneumatic tire, under spring-compression, compacts the dirt firmly against the new concrete.

The concrete is vibrated as it is placed in the trench; usually by a vibrating bar with a power take-off from the widening machine. A heavy steel plate, curved upward in front, slides over the fresh concrete to insure its top surface being flush with the top of the old pavement.

Some widening machines give a slightly corrugated finish to the new concrete by a steel brush attached to the rear of the machine. In other instances the fresh concrete is given a wood-float finish by hand.

Final operation is to cure the new concrete with a membranous curing compound, applied by pressure spray from a hand-propelled machine.

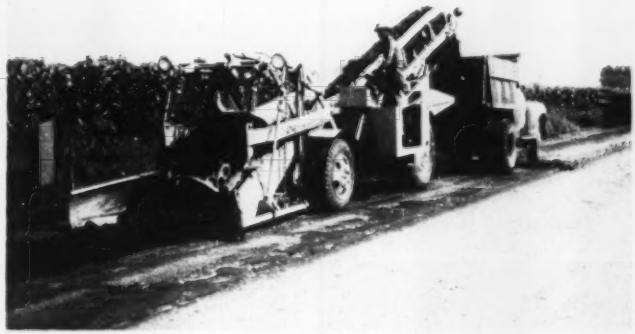
• **Simplified traffic warning**—Keeping traffic off the new concrete until it has hardened is a problem. The work goes so fast that the placing and removing of flag warnings would entail a lot of work.

One ingenious workman solved the problem by placing a row of clods—about the size of a man's fist—along the junction of old and new concrete, at about 10 ft centers. This warns the motorists and does a good job of keeping them off the new concrete.

• **Trenching is simple**—Preparing the trench for widening has been reduced to a simple operation, both by new equipment developed by manufacturers and innovations of the contractors.

The usual procedure is to make initial rough cuts with a patrol grader;

PATROL GRADER makes rough cut of widening trench (at left), followed by fine-grading to required depth and width by special wing-plate attached to end of grader blade (at right).



TRENCH EXCAVATION, not needed for shoulder widening, is removed from the right-of-way. This force-feed loader cleaned-up 8½ miles of shoulder in 8 hr on a widening job in southern Illinois.

followed by fine-grading to proper width and depth.

Special, narrow blades mounted on patrol graders operating along the old pavement do the fine-grading. Some models, equipped with a ripper tooth, do practically all of the trenching.

Spiked templates operating along the edge of the old slab check the depth of trench, after it has been fine-graded and compacted by trench rollers.

• **Like-new pavement**—Widening the old pavement—in almost all instances—is only a part of the project improvement. The complete job of rehabilitation includes sealing cracks in the old pavement, patching areas on the verge of complete failure and under-sealing areas subject to pavement-pumping during wet weather. And finally, the patched, sealed and widened pavement is surfaced with 3-in. of asphaltic concrete.

This complete job of rehabilitation produces a smooth-riding pavement wide enough for today's traffic (usually 24 ft), and strong enough to last for several years.

Total cost of this single-package job of highway improvement varies considerably but probably averages less than half the cost of constructing a new 24-ft pavement.

• **Widening vs new construction**—As an example, last year the state highway department rehabilitated, widened and resurfaced a 17-mile stretch of U. S. Highway 45 south of Champaign at a total cost of $47,800 per mile (ENR Dec. 6, 1951, p. 30). On the same project a 7.6-mile stretch of new 24-ft portland cement concrete cost $117,000 per mile, plus right-of-way.

Pneumatic mandrel used to drive 130-ft piles

Foundations for digestion tanks at new East Hartford, Conn. sewage treatment plant call for piles 130 ft long. They are being driven with aid of a pneumatic mandrel (ENR Jan. 11, 1951 p. 35) that expands inside lightweight steel shell and transmits driving force by friction. Heavy pipe section 25 ft long goes down first. Then 105-ft 12-in dia. shell is lowered into an "assembly pit" (a 16-in pipe driven 100 ft deep); 105-ft mandrel is inserted and expanded; assembly is withdrawn, the shell is welded to the first section and driving proceeds. After mandrel is contracted and withdrawn, 3½ cu yd of concrete complete the pile. Piledriving leads are unusually long—130 ft. The contractor is C. L. Guild Const. Co., East Providence, R. I. (Metropolitan District photo.)

Satisfactory septic tanks possible if existing know-how is followed

FAULTY SEPTIC TANKS ranked high among the most frequent complaints heard by the House Banking Subcommittee, recent investigators into quality of housing financed with government-insured loans.

This despite the fact that there exists a preponderance of printed information on household sewage disposal systems. A bibliography put out by the U. S. Public Health Service in 1949 listed 623 references on the subject. And the list included only titles published through 1947.

The bibliography was contained in a 260-page research report of the U. S. Public Health Service, itself the first of a current series based on studies being pursued cooperatively by PHS and the Housing and Home Finance Agency.

When this first report, "Studies on Household Sewage Disposal Systems," came out in 1949, its foreword stated that there existed "lack of a basic factual foundation" for design and operation of septic tanks. It cautioned against careless application of the findings it included until further related studies were completed. (See ENR Apr. 20, 1950, p 32 for an abstract of the report.)

The further related studies have been pursued and separate phases are being reported now as completed.

• **Newest information available**—The latest of these reports came out in December, a work of HHFA's Division of Housing Research, covering one phase of research being done at the PHS Environmental Health Center, Cincinnati. Summarized briefly, here are some of its conclusions:

1. Septic tanks having two compartments are slightly more efficient in solids retention than single-compartment tanks of equal capacity. Use of more than two compartments is economically unjustifiable.

2. Rectangular tanks perform as well as any, but cylindrical tanks formed with large diameter sewer pipe perform satisfactorily and may be cheaper in some cases.

3. Incomplete studies indicate that conventional T's and baffles at inlets and outlets perform well when properly installed.

• **Soil absorption studies**—The septic tank alone does not dispose of sewage. If the soil won't absorb its effluent, the best designed tank built can't function. Therein may lie much of the present trouble with household sewage disposal.

Studies in Cincinnati have evolved a new method of measuring relative absorptive capacity of soils. The method substitutes a 4-in. auger hole for the 12-in. square test hole used in the method credited to Ryon (1927). The smaller hole is easier to dig, and its size is said not to affect results of the percolation test. The test hole—as deep as drainage trenches to be dug—is first thoroughly saturated, then filled with water to a 6-in. depth. Average time per inch it takes the water level to drop is then a measure of the soil's relative absorptive capacity. Repeated tests in several holes increase accuracy.

Empirical figures have been used in the past for length of 4-in. drain needed to handle 50 gal per capita per day for various percolation rates. If time required for water in the test hole to fall one inch is 1 min, 12 ft of drain has been called for; 5 min, 20 ft; 10 min, 30 ft; 30 min, 60 ft; 60 min, 80 ft. If time exceeds 60 minutes, the soil isn't suitable for a disposal field.

PHS researchers have been looking into actual performance of absorption systems. They found average flow into the systems about 49 gal per capita per day in summer and 39 gpcd in winter. They sketched field layouts, noted installation data, checked operation, took soil samples, made percolation tests and observed action in inspection pits.

• **Conclusions on loading rate**—Comparing actual rates of sewage discharged with soil percolation rates found by test, the researchers conclude: "a safe loading rate of sewage for good field performance was approximately 2% of the soil percolation rate. The effluent load applied to the absorption field was scheduled first in gallons per square foot of trench area per day and also in inches of effluent per hour. This latter quantity should not exceed 2% of the inches-per-hour field absorption rate as measured by percolation test."

An absorption field in use for over six years with a 500-gal septic tank is under study near Bevis, Ohio. Percolation tests have shown that lateral movement of water is a factor in effluent absorption, indicating that trenches could be narrower and deeper for efficient performance. They also show that soil absorption characteristics vary widely over short distances.

Soil clogging may be due to physical action of solids in the effluent biological action or chemical action changing soil structure. And ground garbage in sewage increases clogging.

Tests in the Cincinnati laboratory have led researchers to conclude that absorption rate of a given soil may decrease some 20% over a 16-month period. Thus for design purposes it is safe to reduce percolation rate indicated by tests to 80% to come near actual conditions after 16 months. This will result in a conservative design. Biological activity will tend to lessen clogging and lateral seepage will also boost the indicated absorption rate.

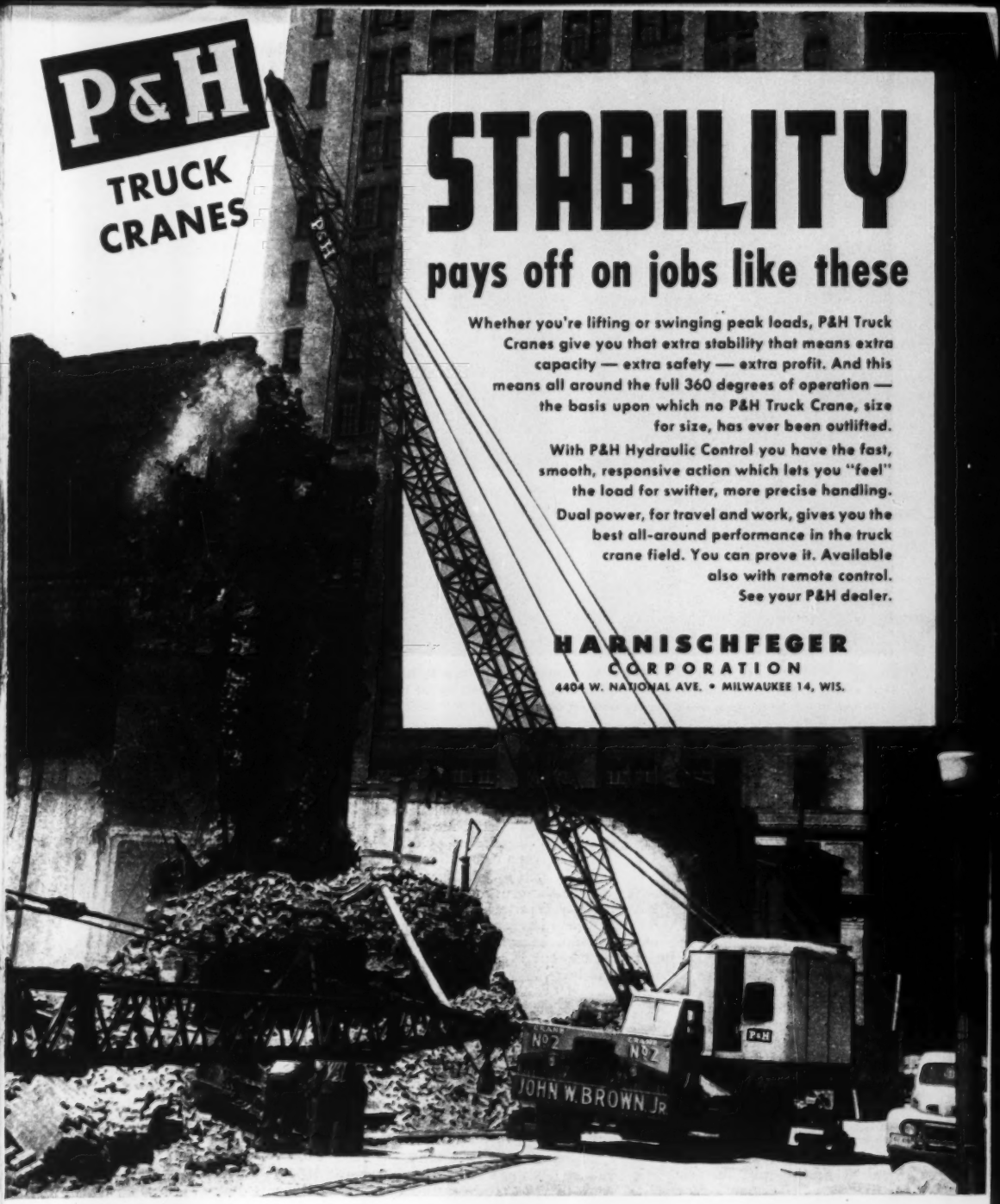
• **To what avail?**—All this research and scientific know-how on septic tanks is just of academic interest unless used by those who build houses. And it is estimated that only 40% of 4.4 million household disposal systems in use were installed under state or local health agency control.

Some 17 million people in the U. S. are already served by septic tank-soil absorption systems, and it is probable that of the million-plus houses now being built each year about half are getting septic tanks.

Some septic tank systems go in where they shouldn't. Florida, with its high water table, has had so much trouble that last year Chief Sanitary Engineer David Lee threatened to withhold approval of any further septic tank installation. Land barely passing percolation tests was being used; one 120-house development had 117 troublesome septic tank systems after one year.

The septic tank—soil absorption system does a complete job when properly installed in suitable soil. But it won't work forever. Users must expect to do a periodic clean-out job. Septic tank cleaning is normally due about every 4 years, but this varies. Garbage grinders add to sludge, and step up clogging rate. Washing machine effluent—whether soap or detergent—clogs soil faster than normal effluent.

There is more to be learned about septic tanks and disposal fields. Research continues, but there will be trouble with actual installations just as long as field practice lags and conflicts with known design-construction criteria.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HEART OF THE LOS ANGELES FREEWAY system is this section bypassing the Civic Center. The ½ mile section of the Hollywood Freeway in the foreground cost $6.5 million. Cleared area for the Harbor Freeway can be seen in the middle background—this section will be the most costly freeway work yet encountered.

Los Angeles freeways cost $150 million

SINCE the end of World War II, more than $150 million has been expended on metropolitan freeways in the Los Angeles area. And spending is continuing at a $30 million a year rate.

This expenditure has produced only 20 mi of new freeway now in use. But it has set the stage for a considerably greater mileage in construction under way, design in process and right-of-way acquired. Much of the expenditure made to date has been in the most congested districts and, hence, has been among the most costly.

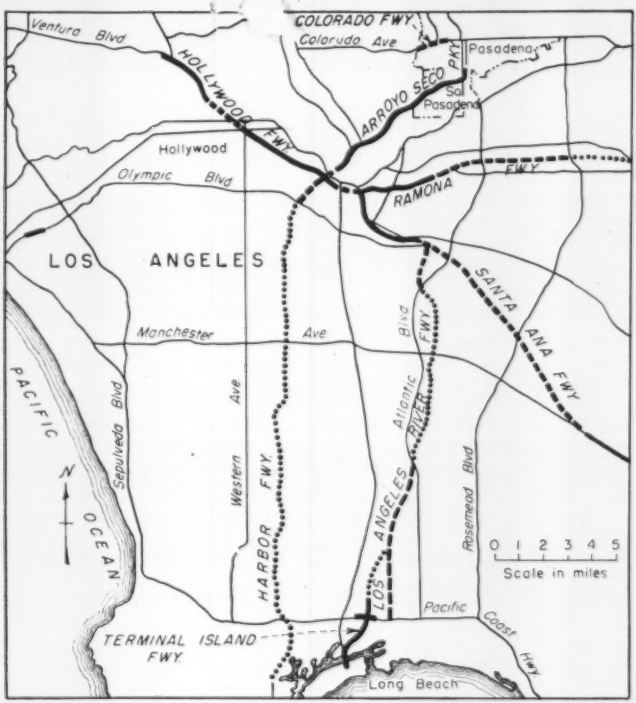
The completed freeways are part of a 165-mi net that was selected by state, county and municipal officials a few years ago as being a minimum 10-yr program. This program was developed in the process of gathering data to substantiate increased highway finance for the entire state of California. Only part of the necessary financing was voted by the legislature (for example, gas tax was increased only 1½¢ a gallon instead of the desired 3¢). But, even so, the additional moneys provided have had a dramatic result in producing high-type metropolitan freeways in the Los Angeles area. Of the 165 mi in the minimum 10-yr program, 151 mi is on the state highway system and will be constructed by the state highway department. Due to higher costs and less funds than needed, this will not be completed in the 10-yr period; but a substantial part of it will be.

• **Some prewar work**—Actually there are now 27 mi of freeway in use in the Los Angeles area—some of which was completed before World War II. The prewar roadway includes 6 mi of the Arroyo Seco Parkway and 1 mi of the Hollywood Freeway in Cahuenga Pass.

Dramatic design lessons have been learned from this early freeway work and are taken into account in the new work. The Arroyo Seco Parkway follows beside the flood channel bearing that name. The resultant road has many curves of much shorter radius than are now used on freeway work. But perhaps the most important lessons learned concern the acceleration and deceleration lanes for traffic leaving and coming on the freeway. Such lanes are now much longer and the junction is much more gradual.

Some of the completed portions of the freeways are already carrying high volumes of traffic. For example, the Hollywood Freeway that is only open as far as Western Ave. (5 mi) is already carrying between 90,000 and 100,000 cars a day. The original capacity was figured at 100,000 cars a day with much of it coming in the morning and evening peak. What effect opening of more sections of this freeway will have on the traffic volume remains to be seen. But it certainly would not lower the count.

• **1953 objectives**—The State Division of Highways has recently summed up their 1953 objectives (see map). This includes completion of 10 mi of the Hollywood Freeway from the Los An-



BY THE END OF 1953, the Los Angeles metropolitan freeway system will look like this. Heavy lines are completed freeways. Heavy dashed lines will be finished by the end of 1953. Dotted lines show freeways now being designed with work scheduled as soon as funds permit.

geles Civic Center to Vineland Ave. in the San Fernando Valley, Romona Freeway will be extended west to Rosemead Blvd. or a total of 7 mi. The Santa Ana Freeway will extend from the Civic Center to east of Norwalk or about 12 mi. The Harbor Freeway will extend a mile, bypassing the most congested part of downtown Los Angeles. A start will have been made on building the Los Angeles River Freeway south from the Santa Ana Freeway and north from Long Beach.

• **Costly work**—Included in this program is some of the most costly freeway work in construction history. For example, the half-mile stretch of the Hollywood Freeway through the Los Angeles Civic Center cost $6.5 million. That would be a total of $13 million a mile. This stretch has been in use for about three months.

The portion of the Harbor Freeway bypassing the central district of Los Angeles will be even more expensive. Final figures cannot be compiled because all of the contracts have not yet been let. It is estimated that in round figures this 1-mi stretch will cost a total of $18 million. About half that figure is for right-of-way acquisition.

• **Organization**—To produce this amount of freeway work requires a complicated organization. Here's how the state staff is set up:

General supervision, budgets, standards and the like are handled in the state headquarters office at Sacramento. But most of the detailed design work, construction supervision and right-of-way acquisition is handled by the staff of Highway District No. VII, located in Los Angeles.

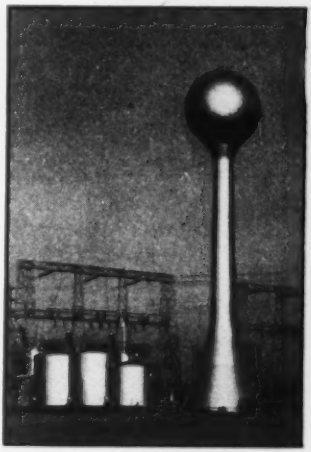
To keep the program rolling, an attempt is made to acquire all necessary right-of-way at least two years in advance of construction. This involves more than 70 right-of-way agents and almost 250 people total in the right-of-way department.

Then comes design. More than 400 people are in what might be termed the design department and about two-thirds of these are engineers. Actual construction is supervised by a staff of more than 100.

The people mentioned above handle all highway work in Los Angeles, Orange and Ventura Counties, which comprise District VII. But the greater percentage of their work is on the freeway program.

Bridges, including freeway separation structures, are administered differently. All bridge design is done in the headquarters office at Sacramento. A field staff that covers all work in the southern California area does the preliminary work and the construction supervision. Total for the bridge department on freeway work in Los Angeles would exceed 100 engineers.

Until about 3 yrs ago top man in the Los Angeles district was S. V. Cortelyou who had been in charge for more than 30 yr. Heading up the work at Los Angeles now is Paul O. Harding with the title Assistant State Highway Engineer. His two main deputies are called District Engineers and they are W. L. Fahey and M. E. Cessna. Under these men eleven or twelve assistant district engineers operate, heading up the various departments. All of this is under the supervision of the Sacramento office with George T. McCoy, state highway engineer, and R. M. Gillis, deputy state highway engineer.



EARTHQUAKE-RESISTANT TANK recently completed for Southern California Edison Co. is the first of its kind designed to resist seismic forces. The 25,000-gal tank was designed with a 10% lateral force factor. Result was thicker plates and a wider bottom cone. The butt welded steel plates vary from 0.25 to 0.35 in. thick. The sphere is 19-ft dia, supporting shaft is 4-ft dia, and the bottom cone is 22-ft dia. The 70-ft-high storage will supply and provide fire protection for the Edison company's new 220-kv Center Substation. Chicago Bridge & Iron Co. fabricated and erected the structure.

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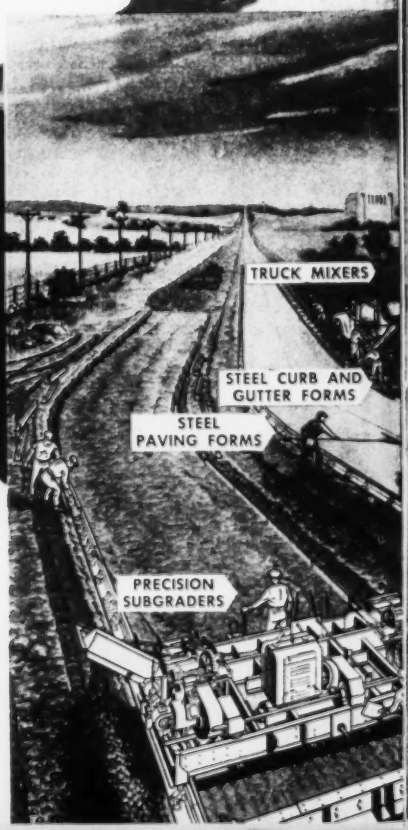

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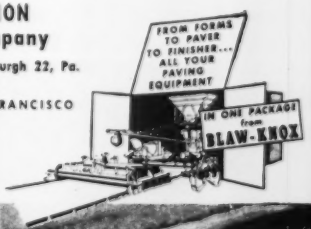
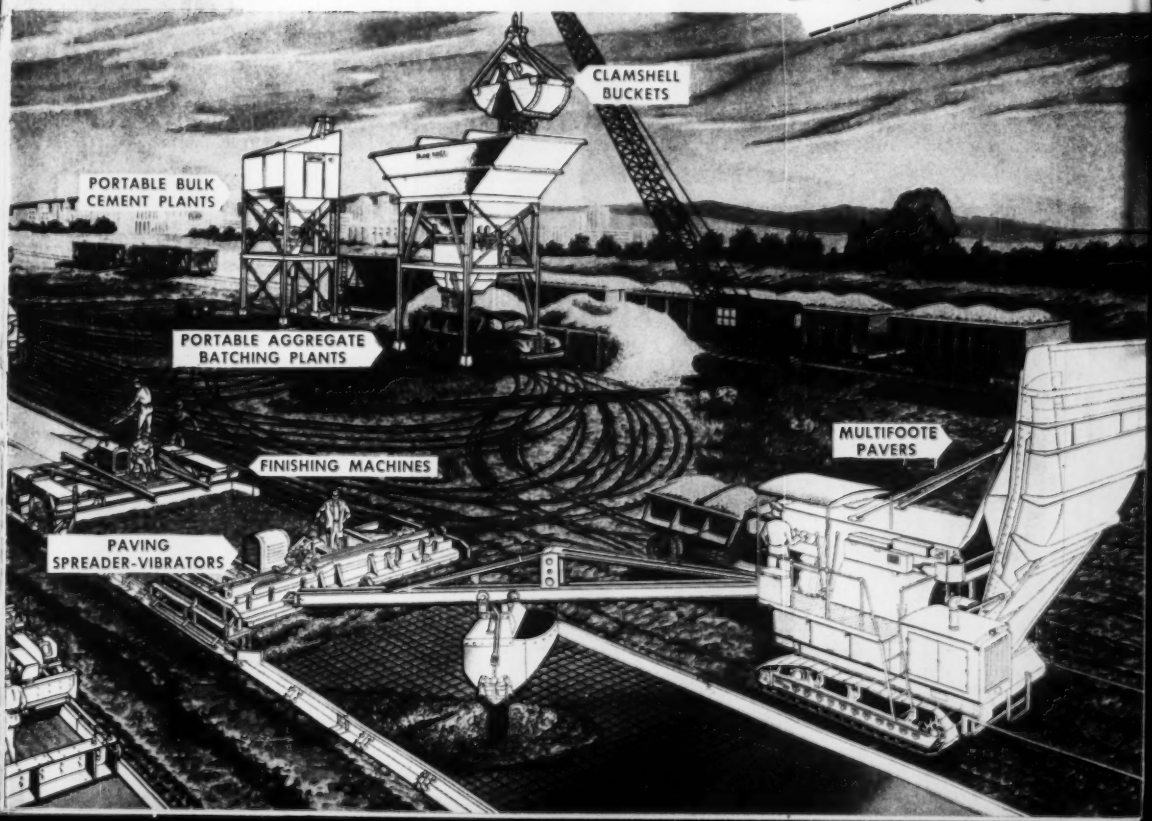
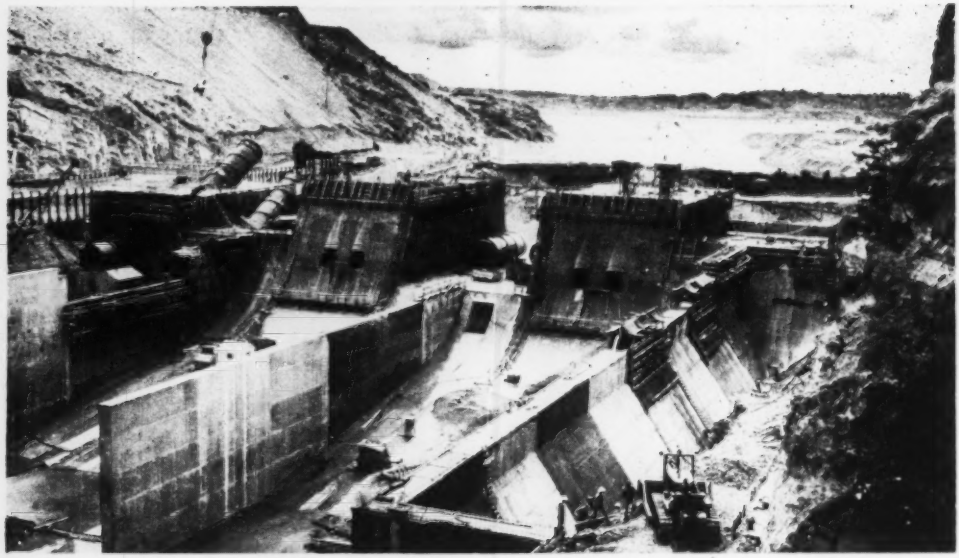






CONCRETE MONOLITHS of Canyon Ferry Dam were carried up to well above the river level last fall, except for central block.

Canyon Ferry Dam is key structure in central Montana water development

WHEN SPRING COMES to the Rockies they'll take the snowbound wraps off Canyon Ferry Dam and step up its construction to a fast tempo. The reasons:

A long winter season has put the $29.5 million project behind schedule; the Bureau of Reclamation wants to start delivering hydropower by October of next year; and the overall project is rated as the key to future water resource development in the Missouri River basin upstream from Fort Benton, Mont.

SUCCESSFUL TRANSITION to second-stage diversion permitted removal of upstream cofferdam and a 65 ft wide by 1,000 ft long timber flume (foreground) that had handled the river flow for the past two years. All concrete is handled by cableway, from concrete plant perched on side of canyon wall (Bureau of Reclamation photos)

• **Second-stage diversion** — Winter came early to Montana, shutting down construction at the dam to winter-time operations last Nov. 14. Second-stage diversion, however, was started three weeks later.

At that time, the upstream coffer dam was breached and the river began flowing through temporary diversion tubes in the dam and over one block in the dam that had been left low for that purpose. The following day, a temporary upstream cofferdam was over-topped, flooding the powerhouse area. Little damage was done, however, and the area was dewatered within a week.

The beginning of second-stage diversion permitted removal of a 65-ft wide by 1,000 ft long open, timber flume which had been carrying the river along its right bank for the past two years. (ENR Aug. 3, 1950, p. 32.)

At present, Canyon Ferry Dam is nearly 60% finished. When completed in 1954 the 225 ft high (173.5 ft above streambed) concrete gravity-type structure will render several benefits to central Montana. Its chief functions are flood control, regulation

of the flow of the upper Missouri River, and generation of power.

• **To irrigate 310,000 acres**—Conservation and control of now unused flood waters, to be stored in the reservoir, will make possible the irrigation of 310,000 acres of new land, plus supplemental water for an additional 196,000 acres—all in the Missouri River basin above Fort Benton, Mont.

Flood and other unappropriated waters from a drainage area of 15,860 sq mi will be stored in Canyon Ferry reservoir, which will have a capacity of 2,050,000 acre-ft.

• **Generate 50,000 kw of power**—The power plant will have an installed capacity of 50,000 kw in three identical generating units. It is estimated that the total firm and secondary annual power production will vary from 320 million kw hr initially to 285 million kw hr after full development of upstream irrigation.

The dam proper, which will have a crest length of 1,000 ft, will contain 355,000 cu yd of concrete. An additional 65,000 cu yd of concrete will be required for the powerhouse, spillway apron and walls, trashracks and other structures.

The first concrete was poured on Sept. 13, 1950. By July of this year 70% of the concrete is expected to be placed.

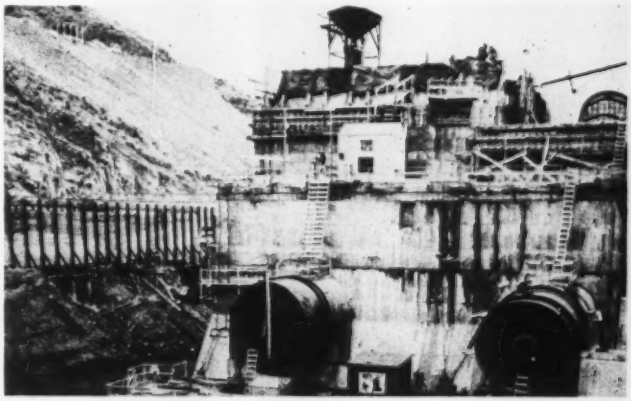
When ground was broken for Canyon Ferry Dam, in the fall of 1949, Secretary of Interior Oscar L. Chapman termed it a "key structure in the Missouri River Basin Development Project." It not only is the first major unit of the project to be built in Montana, but it is also the largest concrete structure under construction on the Missouri.

"Power from Canyon Ferry Dam," said Michael W. Straus, commissioner, Bureau of Reclamation, "will be used for irrigation pumping, for REA needs, and to augment the available power supply in the area for municipal and industrial needs. With the increasing need for additional electric power for national defense, Canyon Ferry power will be invaluable, and we plan to make it available as soon as possible."

It is planned that the Canyon Ferry plant will be interconnected with the Fort Peck system and ultimately with the proposed Yellowtail power plant on the Big Horn River near Hardin.

• **A joint-venture**—Canyon Constructors—a group composed of J. C. Maguire & Co., Brown and Root, Inc., Wunderlich Contracting Co., and Griffith Co.—hold an $11.9 million contract for constructing the dam and power plant building.

HIGH WATER last December overtopped a temporary upstream cofferdam flooding the powerhouse area, but no real damage was done.



TWO OF THE THREE power penstocks have been placed; the third will be placed in a section of the dam to the left of the part already under construction.

PROMINENT VISITOR at Canyon Ferry Dam last fall was Andre C. Coyne, chairman of the International Commission on Large Dams (second from left). Others in the photo are (l to r): Wm. P. Price, Jr., construction engineer, Bureau of Reclamation; Gordon W. Manly, field engineer; Jacques Martin, assistant to Mr. Coyne; and Preston M. Schwartz, office engineer.

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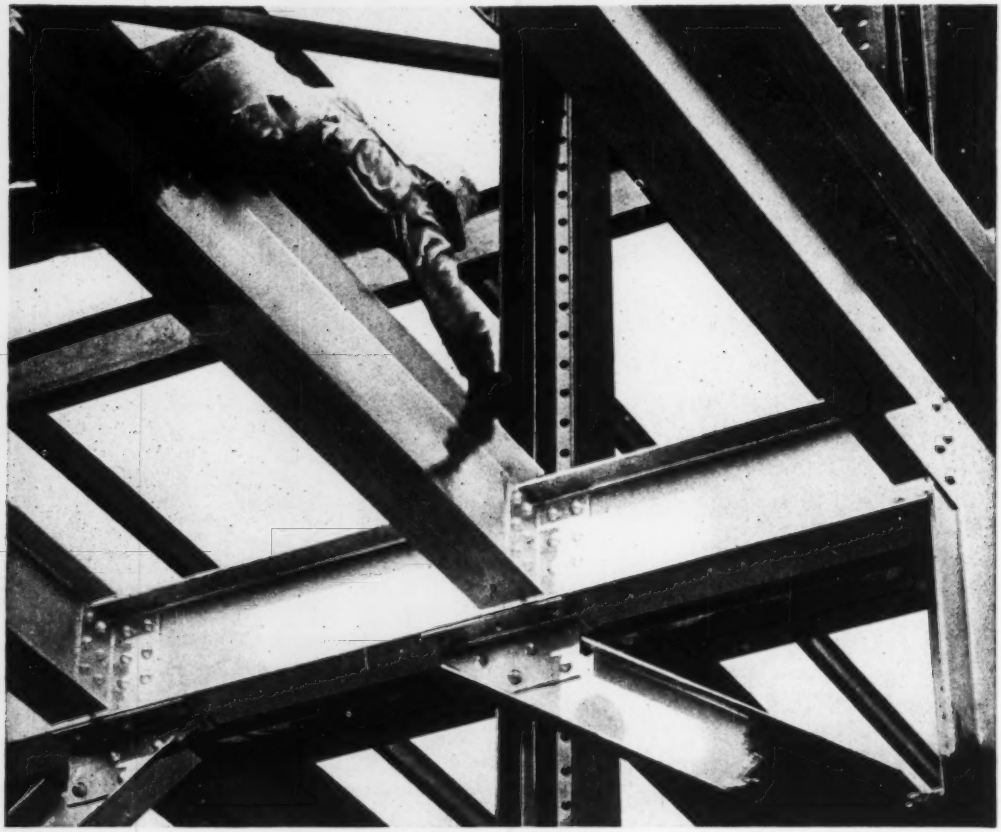

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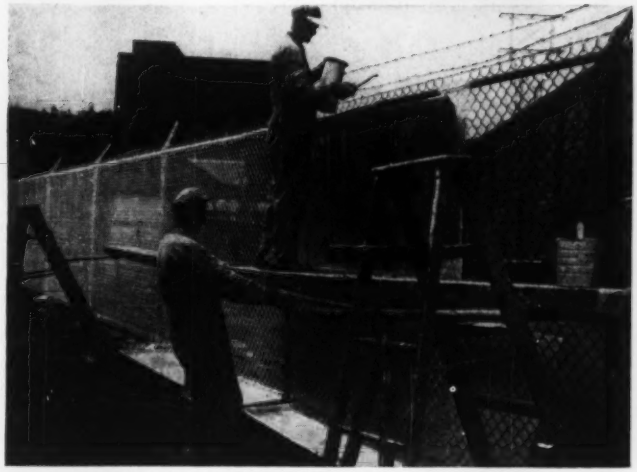
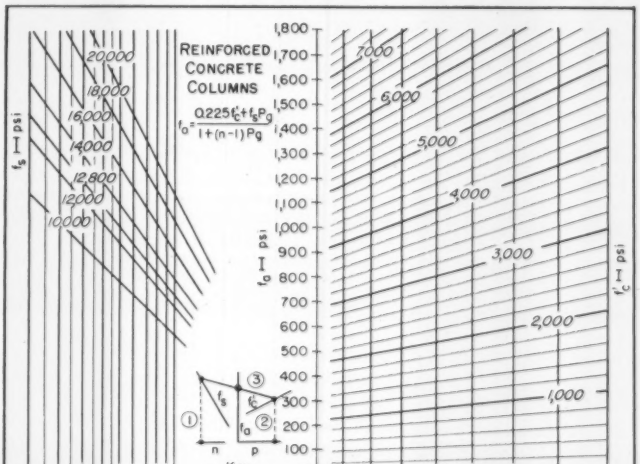
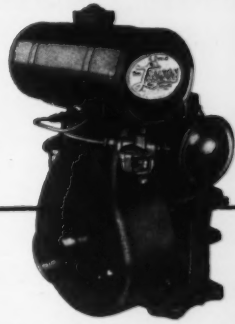


NEW WAY TO PAINT A FENCE—Maintenance costs may be cut 50% for painting wire fences by a method developed by R. W. Spence, paint foreman at the New Kensington Works of the Aluminum Company of America. Instead of brushing or spraying, paint is poured on the fence. Panels on opposite sides of the wire keep paint in contact with the metal. Excess paint is caught in pans at bottom.

Design chart for spiral-reinforced concrete columns



ALLOWABLE STRESSES in axially loaded, spiral-reinforced concrete columns can readily be obtained from the above nomogram, which is based on the American Concrete Institute code. For example, what is the allowable stress on an 18x18-in. column reinforced with twelve No. 9 bars, when $f'_c = 3{,}000$, $f_s = 16{,}000$, $n = 10$ and $p_g = A_s/A_c = 0.037$. Join with a straight line the intersection of n and f_s in the left portion of the chart with the intersection of p_g and f'_c on the right side. Where this line meets the f_o line is the required stress—950 psi. For tied columns, multiply the answer by 0.80. —Prof. Douglas P. Adams and Stanley Sidney, Massachusetts Institute of Technology.



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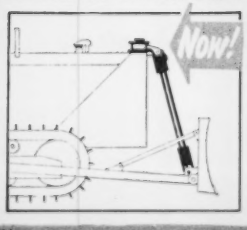

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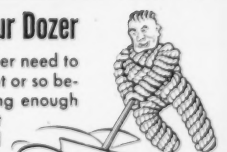

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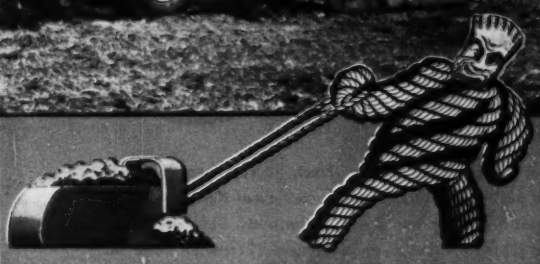
is to forget all about complicated wire rope specifications — all you need to do is to specify the diameter and the length and the name TUFFY Scraper, TUFFY Dragline or TUFFY Sling. Union Wire Rope engineers have developed wire rope constructions and wire fabric constructions to serve universally in specific fields of operation. All you need is — Length, Diameter and the name TUFFY!



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SUPER-FLEXIBLE, Super-TOUGH—Tie Tuffy Slings into knots, kink them, flatten the eyes—and see how many more times you can straighten them without material damage, how cutting any one of the 9 parts of the interlaced wire fabric will not strand the sling. With every type of hitch, under any kind of load or pull, TUFFY Slings have proven their superiority. Each Tuffy sling is proof-tested to twice its safe working load. The interlaced construction makes possible eye splices with 95% of the fabric strength.

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9... Have extra power when needed
10... Are long-lived

Ethel Chilton Mines, Inc., of Ethel, W.Va., recently bought and put into operation at their coal mines this big Autocar-Diesel 6-wheeler with 26-yd. dump body. Before that, they had (1) tried trucks of another make; (2) bought three secondhand Autocars to experiment with; and (3) asked us to have this one custom built exactly to do their tough work on rough roads.

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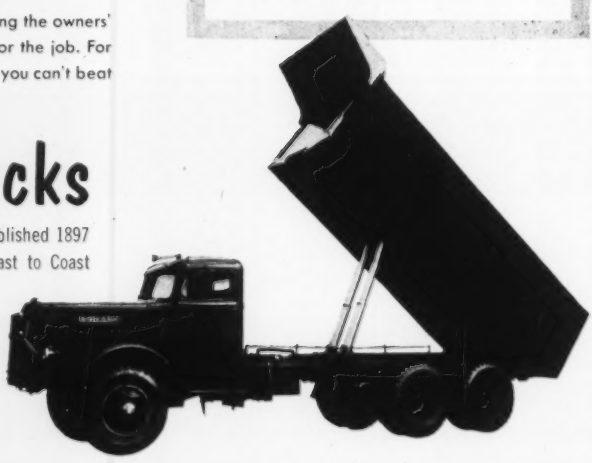

GEORGE D. WHITMORE, newly elected to presidency of American Society of Photogrammetry.

Photogrammetry group elects leader

George D. Whitmore has been elected president of the American Society of Photogrammetry.

President Whitmore began his surveying and mapping career as rodman on a topographic survey of the city of Jackson, Mich. He was later associated with R. H. Randall and Co., Inc., specialists in geodetic and topographic surveys of metropolitan areas.

For 12 years, beginning in 1933, he was chief of surveys for the Tennessee Valley Authority. In 1945 he transferred to the Geological Survey, as chief of the technical staff of the Topographic Division.

For a short period in 1944 he was consultant to Brazil on a national mapping plan for that country.

Whitmore is the author of many texts in surveying and mapping.

In the American Society of Photogrammetry he has served progressively as chairman of several committees, director, and vice-president.

In the American Society of Civil Engineers he served in 1949 as chairman of the Surveying and Mapping Division. Whitmore is also a past president of the American Congress on Surveying and Mapping.

This year marks the hundredth year of photogrammetry and the society now has 2600 members.

Other newly elected officers, include First Vice President Alfred O. Quinn, chief, engineering and field surveys of Aero Service Corporation, Phila., Pa., and Second Vice President Ford Bartlett, president of Lockwood, Kessler & Bartlett, Inc., Great Neck, N. Y.

Quinn served with Maps and Surveys Division of TVA, was with photo intelligence in the U. S. Navy, and served as associate professor of photogrammetry Syracuse University.

Bartlett's firm recently located a railroad by photogrammetry in Colombia and then designed and engineered the 800-mi route connecting the main centers of the country. Bartlett is a member of the engineering advisory committee of the New York City Planning Commission.

(Continued on next page)

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Men and Jobs . . .

Grinter to Florida U.

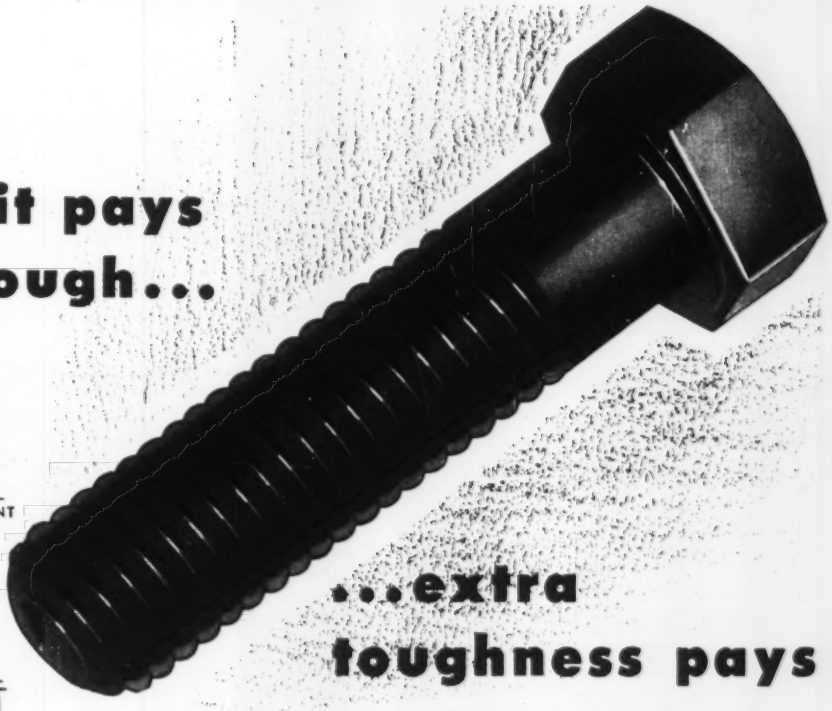
L. E. Grinter, research professor of civil engineering and mechanics at Illinois Institute of Technology, and former vice president of that institution, has been appointed dean of the Graduate School and Director of Research at the University of Florida, Gainesville, Florida. At Gainesville, Dean Grinter will assume responsibility for a graduate student body of 1500 students and a research program involving an expenditure of several million dollars annually. He expects to take up his new duties at the beginning of the fall semester.

Dr. Grinter came to Armour Institute of Technology in 1937 to organize the graduate school and to serve as its first dean. With the merger of Armour and Lewis Institutes he became the first vice president of Illinois Tech and was responsible for the Institute's coordinated educational and research program.

Since 1946, Dr. Grinter has been research professor of civil engineering and mechanics at Illinois Tech. He has also served as chairman of the Panel on Equipment and Construction for the Department of Defense in Washington. In this work he has had the assignment of developing cooperation between the Army, Navy and Air Force in the field of research. Since 1948 he has been a consultant to the Research and Development Board in Washington on the resistance of structures to atomic explosions. His professional activities have taken him to Europe and to the island bases of the Pacific area. He is at present vice president of the American Society for Engineering Education. In this society he was responsible for the organization of the graduate Division.

(*Continued on page 80*)

where it pays to be tough...



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Merritt-Chapman & Scott's specialized ability on every type of construction is reinforced by widely diversified experience in all . . . providing an unmatched construction background that brings extra "know how" to any project, whether in the field of building, industrial, marine or heavy construction.

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In the field of marine construction alone, M-C & S has an impressive record of 73 major projects of every type handled within the last five years . . . every one accomplished more efficiently by bringing into play the diversified resources in equipment, manpower and technique which have been developed through 92 years of specialized versatility.

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Men and Jobs . . .

PHS lists master degrees in sanitary engineering

Arthur P. Miller, sanitary engineer director of the Division of Engineering Resources, U. S. Public Health Service, has tallied up the number of individuals who have been awarded master degrees in sanitary engineering. The total: 1,479.

About 20% of these degrees awarded by U. S. institutions have gone to nationals of other lands. Of 57 schools claiming to offer graduate education in sanitary engineering, 27 actually did award graduate degrees in 1951.

Of the total number who have obtained their master's degree, 46 went on to receive doctorates in this field.

Leading the list of institutions having awarded graduate degrees in sanitary engineering are Harvard with 478, University of Michigan with 200, New York University with 102, University of North Carolina with 98, Massachusetts Institute of Technology with 93.

Seabees get unit citation for gallant Korean action

The Presidential Unit Citation for operations against aggressor forces in Korea in September, 1950 has been awarded 79 former civilian construction workers.

It was the first Korean honors for the Seabees, famed builder-fighter forces of World War II. The men honored for Korean action were members of a detachment of Amphibious Construction Battalion One, part of Naval Beach Group One serving as a reinforcing unit for the First Marine Division in the Inchon landing.

The citation states in part:

"The havoc and destruction wrought on an enemy flushed with previous victories and the vast accomplishments in turning the tide of battle . . . to a vigorous offensive action reflect the highest credit upon the officers and men. . . ."

Careers . . .

• **Appointed**—**Douglas McHenry**, former head of the Concrete Laboratory Section, Bureau of Reclamation, Denver, will join the Portland Cement Association in Chicago as administrative assistant in research and development . . . **Dr. Leonard A. Scheele** was sworn in April 3 for his second term as Surgeon General of Public Health Service . . . **Norman D. Nichols**, a graduate civil engineer, has been named field sales supervisor of A. C. Horn Co., Inc. Mr.

(*Continued on next page*)

Men and Jobs . . .

Nichols has specialized in the production of concrete and concrete products for industrial and home use.

T. Malcolm Price is executive engineer in charge of the new Washington offices of Seelye Stevenson Value & Knecht, New York consulting engineers . . . New chief of the engineering division, Fort Worth District, Corps of Army Engineers is **Kenneth M. Smith**, formerly construction division chief. **James F. Chandler**, a veteran CE employee will fill Smith's post as construction chief . . . **R. C. Dickey**, a member of the engineering division of Ferro Corp., Cleveland, has been promoted to general superintendent of erection . . . Named Chicago district engineer, Corps of Army Engineers, is **Col. Robert P. Kline**, recently in charge of military construction at Fort Richie, Md.

• **Honored**—**Dr. Henry T. Heald**, chancellor of New York University, has been named 1952 winner of the Washington Award, presented annually by five engineering societies for "outstanding leadership in engineering." Dr. Heald, formerly president of Illinois Institute of Technology holds several engineering degrees. He will receive the award in Chicago April 21 . . . In recognition of his "devoted, inspirational and outstanding service over the past 25 years," **Howard S. Cullman**, chairman of The Port of New York Authority received the Authority's Distinguished Service Medal . . . At the University of Illinois, three civil engineering staff members who retired in 1951 or will retire as of Sept. 1, 1952, were presented hand-lettered scrolls and gifts. Honored were **John S. Crandell**, who retired in 1951, and **William H. Rayner** and **C. C. Wiley** who will retire this year.

• **Elected**—Recently named president of the Executive Secretaries International Council of Builders' Exchanges is **Stewart W. Parker**, executive secretary of the Baltimore Building Congress and Exchange . . . In Niagara Falls, **Deane O. Hubbard** was elected president of the Niagara chapter of the New York State Society of Professional Engineers.

• **Retired**—**Cleve G. Woolley**, Salt Lake City's planning engineer, retired April 1, after 36 years of municipal service. One of his major projects was supervision of Salt Lake City's master street plan, including the route of a $20-million freeway to be started shortly.

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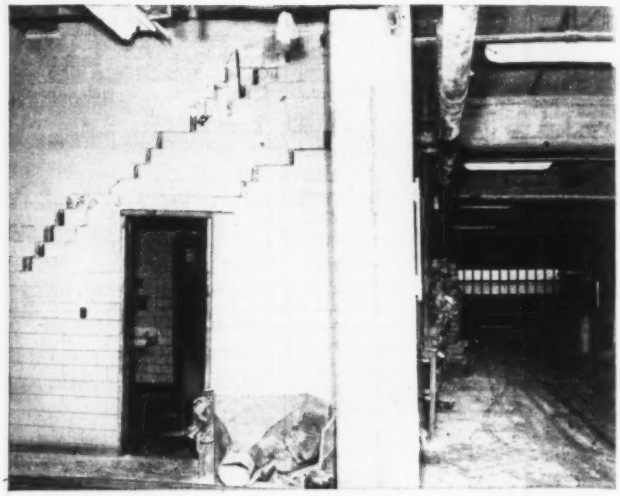
Monotubes put "crippled" building back on its feet!



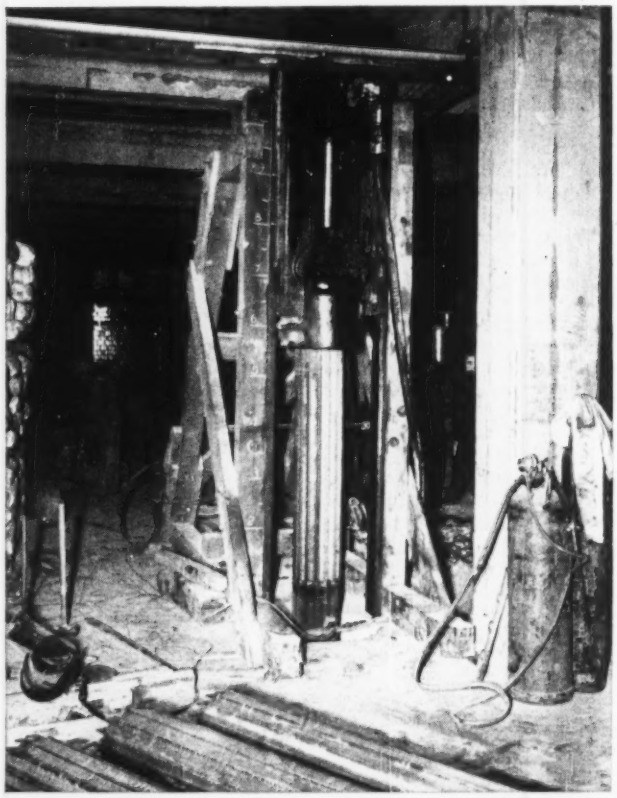
Severe cracking of building wall due to differential settlement.

DOING unusual foundation jobs, even with low headroom, is often the *usual* task for Monotube steel piles. For example, the building pictured here became badly cracked due to differential settlement. The condition had to be corrected—permanently!

Providing proper underpinning *and* licking the low headroom problem was easy with Monotube piles. Short, 6-foot lengths were driven easily; extensions were quickly weld-spliced as needed to reach good soil at 65 to 70 foot depths.

Monotubes have advantages that help solve problems in all kinds of foundation construction—from turnpikes, bridges and skyscrapers, to jobs like the one pictured here. Monotubes, cold-rolled for high strength, offer exceptional rigidity and high structural value. They come in lengths, gauges, tapers and sizes for varying soil conditions.

Send for the complete story. Find out how Monotube steel piles can simplify foundation work and cure construction "headaches", at minimum cost *and* in minimum time. Write to The Union Metal Manufacturing Company, Canton 5, Ohio.



Close-up of Monotube pile being driven in 6-foot sections. Installation by The Purdy Construction Company, Mansfield, Ohio.

UNION METAL

Monotube Foundation Piles

Basin agencies swap ideas on Southwest

Engineering and construction arms of the Federal government met the end of March in San Diego, Calif., to discuss mutual problems in the lower Colorado River Basin area. This session was markedly different from other basin-wide inter-agency meetings in that it was a technical session only. The group has no authority to make recommendations on administrative policy.

Officially called the Pacific Southwest Federal Inter-Agency Technical Committee, the group held meetings like those of any technical society.

Of prime interest was a paper by J. F. Friedkin of the International Boundary and Water Commission who discussed that agency's multiplex problems concerning the international phases of the Colorado River. These problems included operation of Davis Dam, built by the U. S., and Morelos Dam, built by Mexico, to satisfy provisions of the Mexican Water Treaty (ENR, Jan. 25, 1945, vol. p 123).

Ed Nielson, assistant regional director for the Bureau of Reclamation explained the changes in the Colorado River channel due to dam construction. The clear water now passing Hoover Dam has much flatter flow characteristics than the previous muddy water. It results in a channel lowering below the dams and an aggradation at the head of the next reservoir. Steps are being taken to counteract the damage of channel changes.

Missouri Basin survey organization set up

The Missouri River Basin Survey Commission, meeting at Kansas City, Mo., last week, completed its preliminary organization for a comprehensive study of what to do about droughts and floods in the 10-state basin.

The 11-member commission voted to establish its permanent headquarters at Lincoln, Neb., hired an executive director as a staff administrator, and agreed on a series of hearings through April to June.

Chairman James E. Lawrence, of Lincoln, said the first hearing will be held in Kansas City, Mo., with another immediately after in Kansas City, Kan. The commission plans to hold at least one public hearing in each of the ten states. A 5-point program was announced, as follows:

1. Review existing and proposed plans for the development, protection and use of land and water resources in the basin.

2. Conduct on-the-site surveys and appraisals and hold public hearings.

3. Consider the estimated costs and benefits of projects and programs and the economic soundness of development proposals.

4. Consult with state representatives and other groups in the basin.

5. Consider the proper division of financial responsibility between the federal government and the states for resources development.

OFFICERS—Paul J. Cannell, San Francisco, right, confers with James E. Lawrence, chairman of the Missouri Basin Survey Commission. Cannell is executive director.

Industry water problems aired at Chicago meeting

It takes a lot of water to generate electricity, make corn syrup or process meat. Just how important a safe and dependable water supply is to each of these three industries highlighted the closing session of a recent three-day water meeting in Chicago.

It was the 42nd annual convention of the Illinois Section, American Water Works Association. And the more than 300 engineers in attendance heard industry leaders say: . . . a 150,000-kw electric generator needs 1,000,000 lb of steam per hour, and 216 mgd of condensing water . . . it takes nearly a ton of water to make 670 lb of corn syrup . . . while 17 tons of water are used in processing a ton of meat.

Few people realize the large part water plays in the electric utility industry, declared C. J. McLean, general hydraulic engineer, Public Service Company of Northern Illinois. Since the amount of water required for condensing purposes at a steam generating plant weighs 600 times as much as the coal burned in the boilers it is more important, said he, to locate a steam power plant adjacent to a dependable supply of water, than near the source of fuel or the consumer market.

• **Electric utility problems**—Among the more important water problems in operating steam power plants, according to McLean, are: Fluctuations between high and low water, and locating intake and discharge channels to permit a minimum recirculation of the warmed condenser water. Plants using lake water in cold areas have trouble with anchor-ice clogging their trash racks and screens. This can be alleviated by re-using warm discharge water.

Trash removal from intake screens is a serious problem for plants using river water, said McLean. Hand-raking is so costly that the trend is toward mechanical rakes.

• **Syrup-making problems**—The corn-syrup manufacturing industry not only uses large amounts of water but that used in processing must be as pure as drinking water. In addition, declared W. J. Lauterbach, chief chemist, Corn Products Refining Co., Argo, Ill., some chemicals in potable water must be removed before syrup-making.

Iron, calcium and magnesium—and their several salts—are especially objectionable in some instances, said Lauterbach, but one of the most aggravating problems is to get rid of overchlorination of some treated water furnished the wet-process industry by some municipalities. Lime and sulphur alone are seldom objectionable in processing corn for syrup but, when they occur together, they create a real problem.

On the average, declared Lauterbach, 40 gal of water are required in the grinding of 1 bu of corn, plus from 100 to 200 gal used indirectly in the other various processes. In its normal operations, a syrup-processing plant grinding 100,000 bu of corn per day will use enough water to supply a city of 150,000 persons for 24 hr.

• **Need more city water**—Lauterbach expressed concern over the lowering of groundwater in some areas. As the levels subside, industries using large volumes of water must depend more on municipal supplies than their own wells. He warned the water works engineers that more adequate reuse of water must be practiced to prevent depletion.

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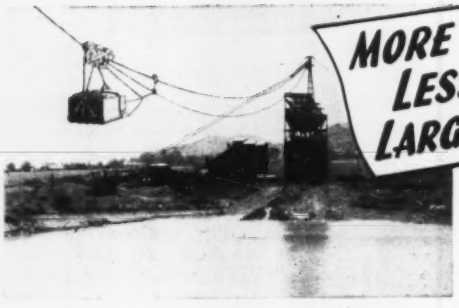


MORE YARDAGE LESS LABOR LARGER PROFITS

Here is a Sauerman Slackline Cableway supplying a screening plant with 225 tons of gravel an hour. Pit is 900′ long, 400′ wide, 100′ deep.

. . . Slash your Handling costs with

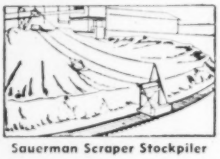
SAUERMAN MACHINES

Where materials are to be moved distances of several hundred feet or more, a Sauerman Drag Scraper or Slackline Cableway can cut the cost per cubic yard to a low figure because it is able to dig, haul and place the material in a continuous, straight-line operation, doing away with the expense of rehandling. The operation is smooth and rapid, producing large yardage with moderate expenditure of power.

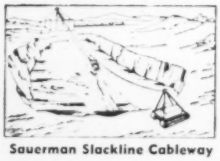
The first cost of a Sauerman Machine is reasonable, maintenance amounts to very little, and the simplicity of operation makes it possible to place the control of even the largest installation in the hands of one operator.

Whether your project is large or small, there is a size and type of Sauerman machine suited to your requirements—a machine that will give you years of steady service at minimum expense.

Sauerman Scraper Excavator



Sauerman Scraper Stockpiler



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Hayward Buckets

Use this Class "E" Clam Shell Bucket for handling crushed stone, gravel, sand and other bulk materials.

THE HAYWARD CO., 48-50 Church St., N. Y.

Meetings . . .

LAUTERBACH—". . . overchlorination of municipal water creates a problem in making corn syrup . . ."

• **Water inventory needed**—In general the groundwater supply in Illinois has not been too seriously affected by pumpage from municipal and industrial wells declared W. J. Roberts, associate engineer, Illinois State Water Survey. However, said he, it is none too soon to take an accurate inventory now of both the water demands and water resources in Illinois, for future guidance in developing and conserving water supplies.

• **New chairman**—Oscar Gullans director, filtration laboratories, South District Filtration Plant, Chicago, was named chairman of the Illinois Section, AWWA for 1952. He succeeds E. E. Alt, contracting engineer, Chicago Bridge & Iron Co., Chicago.

ORSanco sets standards for 160 miles of River

Sewage-treatment requirements for communities along the 160 miles of Ohio River between Huntington, W. Va., and Cincinnati, Ohio, were adopted by the Ohio River Valley Water Sanitation Commission meeting in Cincinnati early this month. The requirements: (1) Substantially complete removal of settleable solids; (2) 45% removal of suspended solids; (3) coliform reduction of 90% May to November and 80% December to April.

ORSanco representatives elected E. B. Moore as chairman to succeed Clarence W. Klassen. Mr. Moore is chairman of Virginia's Water pollution control board.

OBITUARIES

George F. Catlett, 66, of Raleigh, N. C., sanitary engineer with the North Carolina State Board of Health and the State Stream Sanitation Committee, died March 22. He was in charge of water pollution problems for the two bodies. A 1903 graduate of the University of North Carolina, he went to Wilmington in 1912 as sanitary engineer. In 1920 he became principal sanitary engineer with the Sanitary Engineering Division of the North Carolina State Board of Health. In 1932, he became sanitary engineer with the U. S. Public Health Service, and later was chief sanitary engineer with the Florida State Health Department. During World War II, he was sanitary engineer with the War Department, returning to North Carolina in 1946 to become associated with the State Board of Health again and with the State Stream Sanitation Committee.

Walter O. Johnson, 53, Omaha, Neb., engineer and designer, died March 16. He designed parts of the Fort Randall Dam and passageways between storage bunkers at the Naval Ammunition Depot, Hastings, Neb.

Roger L. Morrison, 68, professor of highway engineering and development at the University of Michigan, died March 23. He had been a full professor since 1928.

William Percival Near, 72, civil engineer and former senior vice-chairman of the Ontario Municipal Board, died March 28 in Toronto, Ont. He was educated at the University of Toronto and at one time was city engineer for St. Catharines and London, Ont. In 1934 he joined the provincial highway department and in 1937 was appointed to the Municipal Board.

Alphonse Belanger, 74, Montreal civil engineer, died March 27. He had been director of the Montreal Technical School for 20 years when he retired in 1940. He received his Bachelor of Arts degree from Quebec Seminary and was graduated from the Polytechnic School of Montreal in 1910.

John N. Heltzel, 70, president of Heltzel Steel, Form & Iron Co. and Flexible Road Joint Machine Co. of Warren, Pa., died at Key West, Fla., March 29. The Heltzel Company was one of the pioneers in special types of forms for road construction and Mr. Heltzel, the founder, was well known in road building circles.

W. K. Hatt, 84, former head and founder of the school of civil engineering, Purdue University, died at Birmingham, Mich., March 31. He had retired in 1937 after 44 years with the school. He was a former state engineer and former president of the American Concrete Institute. He was a consulting engineer for Hoover Dam and other projects.

Anthony Landers, 66, Glenloch, Pa., who died recently was generally regarded as the father of the white road traffic line, which has prevented many fatal accidents in the last 30 years. The white line was originated by Landers in 1922 and put into use on the Lincoln Highway intersection with Pennsylvania State Route 100 at Exton, four miles east of Downingtown.

Paul E. Alexander, 66, Toledo, Ohio, structural engineer with the firm of Britsch & Munger, died March 31.

William M. Neptune, 69, retired assistant engineer of the Missouri Pacific Lines, died April 2 in St. Louis. He retired in March, 1951, after 45 years of service on the engineering staff of the railroad, which he joined shortly after he was graduated from Purdue University. He specialized in hydraulic and drainage engineering.

Sebastian Patti, 67, founder and president of the S. Patti Construction Co, died in Kansas City, Mo. April 4. His firm built many large structures in the Kansas City area, and with the McDonald Construction Co. of St. Louis has become the largest construction combine in Alaska.

Nelson Ferris, 94, contractor in Niagara Falls, Ont., for many years, died March 16. He was active in the business for 65 years before retiring.

Charles E. Bell, 75, engineer and traffic and transportation consultant, died March 13 in North Chevy Chase, Md. He specialized in practice before the Interstate Commerce Commission. During World War I, he served as assistant to the director of traffic, United States Railroad Administration. In 1933-34 he was special advisor in railroad matters for the Turkish government. Returning to Washington in 1934, he was appointed executive assistant to the late Joseph B. Eastman, Federal Coordinator of Transportation.

PILE FOUNDATIONS

Just Published

1. **Provides the information required** for the design, driving and maintenance of pile foundations. Covers the relations between borings, soil mechanics, and pile foundations. The most effective methods for determining pile capacities from driving resistance and friction values; the selection of rigs; the factors affecting choice of pile types, etc. One chapter supplies over 50 actual cases of pile foundation failures, with causes, methods of protection, and remedies. **By Robert D. Chellis, Structural Eng'r., Stone & Webster Corp., 640 pages, illus., $12.50**

LEGAL PHASES OF CONSTRUCTION CONTRACTS

2. **A helpful reference manual that can save you time, trouble, and money.** It helps you ward off costly lawsuits by showing you before you become involved different types of legal troubles likely to occur in connection with construction work. It points out and discusses 46 most common problems involved in the performance of a construction contract, intelligently charts how you can eliminate obstacles in your next construction relations. **By L. Vernon Weehen, Member, New York Bar. 227 pages, $4.50**

HANDBOOK of RIGGING

3. **Furnishes the tips, methods and techniques essential to more effective rigging practices** in industrial and construction operations. Deals with everyday maintenance operations with the transportation and handling of heavy machinery with the erection and demolition of smaller size structures. Covers everything from ropes and hooks, slings and ladders, planks for scaffolds, to knots and derricks. **By W. E. Rossnagel, Safety Eng'r. 324 pages, over 300 illus., $5.50**

HYDRAULIC TRANSIENTS

4. **Shows how to solve problems in hydraulic transients** by applying arithmetic integration and trial-and-error arithmetic. Illustrated with actual computations of structures now in successful operation, with a condensed yet adequate theoretical background for the steps prescribed. Covers problems in water hammer, surge tank design, turbine speed regulation, stability of governing, pressures in pump discharge lines, filling systems for navigation locks, and surges in open canals. **By George R. Rich, Consulting Engineer, 225 pages, 146 diagrams and tables, $7.00**

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NEW ADVERTISEMENTS Address New York Office, 330 W. 42nd St., N. Y. 36, for April 24th issue closing April 14th

WANTED

COST ENGINEER

Experienced construction Cost Engineer needed for work on large steam-electric station construction projects. Location . . . south or southwest. Submit resume of experience, education and salary desired.

Box P-3629, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

CIVIL ENGINEER wanted for Municipal Engineering. Highway construction experience desired. Salary range $3950 to $4600. Contact Mr. F. J. Euclide, Engineer Superintendent, City Hall, Green Bay, Wis., for formal application blanks and interview.

CONTRACTOR'S ASSISTANTS Wanted by large General Contractor—North Jersey area. Two construction men with field and office experience to assist in quantity take-offs, detailing, expediting, and projecting for industrial buildings and public work. Must have thorough knowledge of job procedure, plans, and specifications. Civil Engineers preferred. Top salary to qualified men. Submit complete resume in first letter. P-3923, Engineering News-Record.

ENGINEER — EXPERIENCED, Estimator Roads, Sewers, Water, Pump Stations. Gestone Bros., Inc., 1403 Broad Street, Bloomfield, N. J. Telephone Edison 8-5068 or Montclair 3-2421.

ENGINEER - ESTIMATOR Able to assume charge of quantity survey estimates on carpentry, concrete, forms, excavation, masonry, etc., for large building construction projects. Desire man who can serve as project manager, handle shop drawings, engineering correspondence, some purchasing and subcontract work, and expedite job progress and materials after contracts are secured. An excellent opportunity for the right man. Apply in confidence giving salary desired, age, when available, etc. Fleischer Engineering & Construction Co., 936 Ellicott Square, Buffalo 3, N. Y.

ESTIMATOR—PERMANENT Position with long established contractor in Western New York. Must be experienced in Industrial Construction, Commercial and General Construction. Quantity Takeoff, Pricing and Supervision. Submit full resume, stating education, experience, age, availability and salary expected. P-3848, Engineering News-Record.

SEVERAL ENGINEERS in office of consultant on sanitary projects, experienced in this or related fields such as structural or hydraulic. Permanent positions intended. Full information, references and salary requirement requested. Location, Ohio. P-3784, Engineering News-Record.

HIGHWAY ENGINEER—experienced in the preparation of construction plans for primary cross country routes. Civil Engineer—experienced in land planning for residential housing projects and in the preparation of construction plans for streets, storm drainage, sanitary sewers and water distribution systems. Positions located in Northern Virginia. In reply please furnish photograph, complete but concise experience resume and salary required. P-3957, Engineering News-Record.

—ENGINEERS WANTED—

Civil, electrical, mechanical and structural engineers for design, construction and operation of electric power projects and irrigation projects in Puerto Rico—recent graduates, salary commensurate with experience. Positions carry liberal vacation leave, sick leave, retirement benefits and merit increases for satisfactory service. Opportunity for learning Spanish and for extending experience in design and construction on dams, canals, tunnels, highways, bridges, power plants and other engineering structures.

PUERTO RICO
WATER RESOURCES AUTHORITY
Box 4267, San Juan, Puerto Rico

POSITIONS VACANT

STRUCTURAL ENGINEER to handle take-off, estimating, preparation of layout drawings and design one story buildings. Specializing in open web steel joist, longspan joist and steel truss construction. Excellent opportunity for man with initiative. State education, experience and qualifications. New York City. P-3921, Engineering News-Record.

SUPERINTENDENT OF Public Works; take charge of street maintenance and repairs, sewer maintenance, drainage, equipment control and general municipal public works administration, town of 10,000 population; New Jersey; state experience and salary required. Position now open. P-3949, Engineering News-Record.

WANTED—CIVIL Engineer graduate, some experience in highway construction with basic knowledge of soils and application to pavements required for laboratory and field tests, by long established engineering promotional and educational organization, for work in New York, New Jersey, and Connecticut. Age 25 to 40. Give resume of education, engineering experience, and salary requirements in reply. P-3841, Engineering News-Record.

WANTED—COMPETENT Superintendent. Experienced to supervise hospital or school construction. Age 32-40. State qualifications. P-3876, Engineering News-Record.

WANTED — CONTRACTOR'S Engineer: Assistant to Contractor Operating in New York City and Suburbs; With at least Ten Years experience in Field and Office as Superintendent and Estimator in Heavy Construction Field, including Excavation, Foundations, Bridges, Highways, etc.; Familiar with equipment; Be Competent to handle Men and Organize work. State Education, Experience, and Particulars in Full detail; Salary desired. P-3913, Engineering News-Record.

WANTED QUALIFIED Building Construction Estimator preferably a college graduate in architectural or civil engineering. A permanent position for the right man. Please give experience, references and salary desired. Location: Texas. P-3907, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

MANUFACTURER OF Chain Link Fences desires additional Sales Outlets from Eastern Seaboard. West to Mississippi River. Write qualifications and other companies you represent. RW-3839, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL $3,000-$25,000. This confidential service, established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

(Continued on the opposite page)

WANTED

GENERAL EQUIPMENT WEST COAST MAINTENANCE SUPERINTENDENT

Here is an opportunity for a man who has a successful background in the maintenance and repair division of a large construction company or its equivalent. He will be in charge of all equipment for a large construction company and must thoroughly understand all types of equipment used in the building of bridges, tunnels, dams, highways, buildings, etc. He will administer and coordinate the equipment program in the various company projects, and his past record should therefore demonstrate his ability to take responsible charge and get results. Please submit complete personal information and specific job experience in your reply. Our employees know of this ad. All replies will be held confidential and will be acknowledged. Salary open.

P-3928, Engineering News-Record
68 Post Street, San Francisco 4, Calif.

Permanent Positions Open to ENGINEERS

. . . after training at full-time pay . . . as

Consultants in Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:
P-2807, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

Designing Engineers for Structural Steel or Reinforcing Steel

Experienced in design for architects and fabrication company. Excellent opportunity for qualified men. State qualifications, availability, reference and salary desired.

ROBBERSON STEEL COMPANY
P. O. Box 1675 Oklahoma City, Oklahoma

WANTED

SALES ENGINEER

To represent a nation wide corrosive resistant and maintenance contracting firm. One having contacts with chemical and paper pulp plants. Must be able to handle large contracts. Drawing account against commission. State age and experience in first letter.

SW-3895, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED
MECHANICAL ENGINEER

Established consulting firm, New York area, desires Mechanical Engineer, capable supervising starting, testing, operating and correcting troubles of steam-electric station equipment. Plant betterment work involving considerable travelling. Technical education, and plant operating or betterment experience required. State education, experience and salary desired.

P-3630, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

WANTED
CITY ADMINISTRATOR

City of San Carlos, Calif.

(Pop. approx. 16,000) invites applications

Salary open depending upon the experience and qualifications of man selected. City Administrator experience preferred. Contact City Clerk, City Hall, San Carlos, California, for application and qualifications. Closing date for receipt of applications closes May 31st.

WANTED

Detailers, checkers and Squad Bosses for Structural Steel or Reinforcing Steel

Experienced in making shop details for fabrication company. Excellent opportunity for qualified men. State qualifications, reference and salary desired.

ROBBERSON STEEL COMPANY
P. O. Box 1675 Oklahoma City, Oklahoma

POSITIONS WANTED
(Continued from the opposite page)

BRIDGE ENGINEER, presently employed, 8 years experience, 3 years excellent bridge design experience. Thoroughly familiar with bridge details. Desires responsible challenging opportunity in N.Y.C. or surrounding Area. PW-3947, Engineering News-Record.

CHIEF ESTIMATOR—Estimator all types of Building Construction, 25 years experience all Building Trades, Quantity Survey, Pricing, Job Costs, Construction Methods and Analyzation desires interview for permanent position. PW-3859, Engineering News-Record.

CIVIL ENGINEER, graduate, advanced degree, licensed, 7 years experience hydraulics and related work, desires position eastern area. PW-3956, Engineering News-Record.

CIVIL ENGINEER: Contractor-Engineer representative or supervising engineer. Registered P.E. N.Y. Broad field and office experience. General construction, airports, highways, municipal and major defense projects. Reports. Twenty years on responsible assignments covering Latin America, West Indies, Pacific and Far East Area. Fluent Spanish. Prefer south or foreign. Responsible and active. Age 64. Personal interview suggested. Presently located N. Y. City. PW-3889, Engineering News-Record.

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STRUCTURAL ENGINEERING
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1952 (10th) Edition

A 105-page booklet of tabulated construction costs revised as of January 1952. 1600 average spot prices, alphabetically arranged and broken down for labor and material, plus 112 explanatory paragraphs. Concise, Comprehensive, Up-to-date. Handy $2.75 Postpaid.

R. S. MEANS **P. O. Box 36N** **Duxbury, Mass.**

POSITIONS WANTED

EXECUTIVE CONSTRUCTION Engineer, long experience, estimates and supervision heavy construction including foundations, dams, docks, tunnels, especially difficult subaqueous structures. PW-3497, Engineering News-Record.

CIVIL ENGINEER Graduate in Structural Design, twenty-eight, single, Junior member of ASCE, *four years* sub-professional experience in Soils Mechanics, three years professional experience in Stress Analysis, including a thorough knowledge of the use of A.E.R. Love's Stress, Strain, and Deflection Formulae, Newmark's Charts, etc. Presently employed, but desires job with more challenge and future. PW-3945, Engineering News-Record.

CIVIL ENGINEER, M.ASCE, 56, degrees, state licenses, 30 years experience: design, construction and administration: bridges, parkways, thruways, airports, harbor works, railroads, underpinning and foundations. PW-3736, Engineering News-Record.

CONSTRUCTION CIVIL Engineer 38, graduate, 15 years experience on irrigation projects, surveying, heavy construction, and city public works structures. Prefer position in temperate to cold climates either domestic or foreign. Minimum salary $8500 per year. PW-3542, Engineering News-Record.

CONSTRUCTION EXECUTIVE—20 years experience Commercial—Hospital and Federal Housing projects. Familiar with office engineering estimating—preparing bids—negotiating contracts—progress scheduling—expediting—supervision and Government procedure. Age 50, now employed in responsible position. Desire change. Present salary $7500. Prefer Eastern Seaboard or South. PW-3828, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, concrete pipe manufacturer, considerable experience machine or cast methods. PW-3836, Engineering News-Record.

ENGINEER, CIVIL, 16 years experience construction, field supervision, pipelines, water treatments and sewage disposal plants. Long contract or permanent. PW-3885, Engineering News-Record.

ESTIMATOR, FOREMAN, Mechanic, on ceramic tile, terrazzo, slate & marble work, cement & resilient floors, $4,000 yr. Good health, habits, dependable, 20 yrs. experience. Purchasing set up for material at cost. Write PW-3951, Engineering News-Record.

GENERAL CONTRACTOR'S righthand man, 35, registered engineer, 12 yrs. experience, estimator, Job manager, industrial, commercial, institutional. Prefer position in Southern Michigan with live wire contractor. Presently Employed. PW-3920, Engineering News-Record.

GENERAL SUPERINTENDENT 52, with a thorough experience in that capacity, on public, commercial and industrial work, including school, hospitals, housing, power plants and government projects. Concrete and masonry specialist, with ability to minimize overhead and construction costs. References. PW-3583, Engineering News-Record.

CONSTRUCTION IN EUROPE

Available executive Civil Engineer, registered, 25 years diversified domestic and foreign heavy construction experience. Negotiations, design planning, supervision, etc. Recently completed one year European assignment. Fluent French. German I-A References.

PW-3908, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

CONSTRUCTION MANAGEMENT

Superintendents and Project Managers Training Course

All instruction by mail. Send today for sample lesson and complete details.

GEO. E. DEATHERAGE & SON
5 E. Preston St. Baltimore 2, Maryland

POSITIONS WANTED

SUPT.—GEN. Supt. 30 years extensive experience, heavy excavations, sewers water, mass concrete construction, bridges, highways, airports, flood control. Seeks connection with progressive well established firm. Highest references. Salary required $1200 per month. PW-3898, Engineering News-Record.

SUPERINTENDENT OR Assistant to Project Manager, 21 years construction experience. Heavy excavation, concrete, heavy foundation, sewer and drainage work. All types highway & airport work. Concrete and bituminous paving. Know men, methods, equipment and cost. Available May 1st. PW-3810, Engineering News-Record.

WELDING SUPERVISOR—age 40, background, piping, piers, bridges, docks, subways, and tank farms desires Foreign work. PW-3781, Engineering News-Record.

WORK WANTED

ARCHITECT REG. NY, NJ, NCARB. New York Region, Man. Pref. WW-3946, Engineering News-Record.

CIVIL ENGINEER, Registered N.Y. Desires part-time work at home from Syracuse area. WW-3917, Engineering News-Record.

Jobs Wanted Any Place.

We have the equipment & experienced Divers for any job Under-Water. Contract or day rates. Brown, 353 Williford, Memphis, Tenn.

Small New Engineering Organization

with vast experience in Mechanical, Piping, and Structural Engineering desires an opportunity to prove itself to a customer. Efficient and thorough services offered in design, detailing and drafting. The J. H. Frank Engineers, P.O. Box 383, Anniston, Alabama.

FOR SALE
HEAVY CONSTRUCTION CONTRACTOR'S BUSINESS—TEXAS

Equipped for inland marine construction all kinds, pile-driving, foundations, earthwork. Available with or without office, warehouse, and yard. Could include nucleus of personnel.

Fulton Construction Company
P.O. Box 13197, Houston 19, Texas.

Sealed proposals for purchase of following 3 barges for sale by Panama Canal Company will be received by General Purchasing Officer, Panama Canal Co., Washington 25, D. C. until 10:30 A.M., June 3, 1952:

2—Steel dump barges, mud, 1000 cubic yards, and 1600 cubic yards capacity.

1—Steel oil barge 1920 barrels capacity.

Blanks and information relative to this invitation may be obtained from the above office.

FOR SALE

CURRENT MODEL JOHNSON CENTRAL MIXING PLANT COMPLYING WITH CORPS OF ENGINEER SPECIFICATIONS

consisting of

400-CUBIC YARD OCTO BIN
1,000-BBL. CEMENT SILO AND ELEVATOR
TWO 2-CUBIC YARD KOEHRING TILTERS
BATCHERS, CONTROLS, RECORDERS, ETC.
ONE 600-CUBIC YARD 4-POCKET GROUND STORAGE BIN

Arrangement is such that two additional 2-cubic yard tilters can readily be added. Entire plant is less than two years old and has placed only 40,000 cubic yards concrete. Can be inspected in operation in Kentucky.

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NEW PORTABLE COMPRESSORS

JOY-SULLIVAN

For Immediate Shipment

1—315 cu. ft. Diesel 4 Wheel
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1—105 cu. ft. Gasoline 2 Wheel

Slightly Used

2—105 cu. ft. Gasoline 2 Wheel
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357 W. Fayette St.—Syracuse 2, N. Y.
Phone 75-2196

DEPENDABLE USED MACHINES

Special.—Gruendler 10x36 roller bearing jaw crusher with A-C Gas Motor. Come see it!

Lorain 40 dragline	New Morris 10 maganese gravel pump	Iowa 15x36 crusher
Lorain 1½ yd. hoe	New Pioneer 3x10 vibrating screen	3 yd. Dumpcrete
Haiss 75W loader	New Pioneer 18"x100' conveyor	Eagle coal crusher
Badger 203 ditcher	24"x60' Atlas port. conveyor	Jaeger 7H hoist
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For rent,—cranes, draglines, backhoes, buckets, and all other accessories.

10002 Southwest Highway, TRACTOR & EQUIPMENT CO., Oak Lawn, Illinois

IMMEDIATE DELIVERY

5000 feet, Blaw-Knox, 9 x 9 Road Forms
2000 feet, Heltzel, 7 x 7 Road Forms
3500 feet, Blaw-Knox, 10 x 8 Road Forms
2—Barber-Greene Finishers, Model 879A
2—Koehring, Model 34E Pavers
2—Koehring, Model 27E Pavers

AL J. GOODMAN

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FOR SALE — DREDGE SLEEVES

55 pcs. 12¾" I. D. x 2'-0" lg. 12 ply ½" tube. New, Quaker Highest Quality. Below Jobber's Cost @ $48.50 per foot.

Also one length new sand suction 12¾" I. D. x 12'-0" lg. 12 ply, ¼" tube. $42.00 per foot.

NEFF-THOMAS MACHINERY, INC., 1920 N. W. Miami Ct., Miami, Florida

LIMA #802 DRAGLINE

Ser. #2432. D-17000 Cat Diesel. 80 ft. boom. Good condition. $27,500.00 fob barge Key West, Fla. Consider rental, purchase option.

Wenzel Machinery Rental & Sales Co.

2136 Jefferson Street. — Kansas City, Mo.

FOR SALE—NEW STEEL

We can furnish your requirements for prompt delivery in Galvanized Steel Sheets, Imported, 16 gauge through 30 gauge, any sizes; domestic and imported REINFORCING RODS, ASTM 15/39, MILD GRADE, ¾" through 1½" inclusive; cold rolled ROUNDS, I-BEAMS, H-BEAMS, PLATES, SHEETS, ANGLES, AND OTHER STEEL PRODUCTS, MOST ANY SIZES, ANY QUANTITY, WRITE

Box FS-3298, c/o Engineering News-Record,
330 West 42nd St., New York 36, N. Y.

FOR SALE

3 Koehring Dumptors, Model DW-60, Serial Numbers D-2577, D-2578 and D-2579. Good Condition, original rubber, approx. 5 years old.

PRICE: $7,000 each

T. L. JAMES & CO., INC.,
Phones 4-2511 and 4-2512 — Kenner, La.

FOR SALE

2—Universal Jaw Crushers 10 x 36. Serials 27543 and 27549
1—Chicago Pneumatic Air Compressor 315 C.F. Caterpillar Diesel D-8800 Power Unit

Above located in Wyoming

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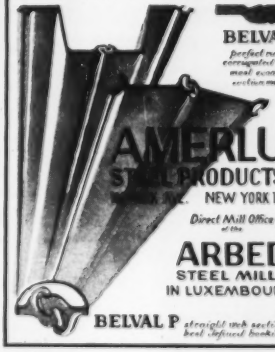

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OFFICIAL PROPOSALS

Bids: May 8, 1952

Sanitary Sewer System

Sealed proposals will be received by the North York Borough Authority of the Borough of North York, York County, Pennsylvania in the Council Chamber, second floor, Liberty Fire Company, 1040 North George Street, York, Pa., until 7:30 P.M., Eastern Standard Time, the day of May 8, 1952, for the CONSTRUCTION OF A COMPLETE SANITARY SEWER SYSTEM AND APPURTENANCES IN THE BOROUGH OF NORTH YORK, YORK COUNTY, PENNSYLVANIA, at which time and place they will immediately be publicly opened and read aloud.

The Information for Bidders, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of The Weigle Engineering Company, 230 N. Duke St., York, Pa., copies thereof may be obtained at the said office of The Weigle Engineering Company, upon payment of $30.00 for each set. Any bidder upon returning such set in good condition will be refunded his payment and any non-bidder upon so returning such set promptly will be refunded $15.00.

The North York Borough Authority reserves the right to waive any informalities in, or to reject, any or all bids.

A bid bond or certified check made payable to the North York Borough Authority in the amount of five (5%) per cent of the bid must be deposited by each bidder with his bid as a guarantee that in the case the contract is awarded to him, that he will within five (5) days, execute such contract and furnish a satisfactory Performance Bond. On failure to do so he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.

The successful Bidder will be required to furnish a Performance Bond and Labor and Materialman's Bond satisfactory to the North York Borough Authority in the amount of the contract, and having a surety thereon such company or companies as are acceptable to the Authority.

No Bidder may withdraw his bid within forty-five (45) days, after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

NORTH YORK BOROUGH AUTHORITY
Perry Peiffer, Secretary
1148 North George Street
North York, Pennsylvania

April 10, 1952

Bids: May 9, 1952

Approaches to Bridges

DELAWARE RIVER JOINT TOLL BRIDGE COMMISSION
526 Broad Street Bank Building
Trenton 8, New Jersey

Sealed proposals for the construction of the western approaches for three bridges over the Delaware River, between Pennsylvania and New Jersey will be received by the Delaware River Joint Toll Bridge Commission at its office, 526 Broad Street Bank Building, Trenton 8, New Jersey, until eleven o'clock (11:00 A.M., E.D.S.T.) on the 9th day of May, 1952, at which time and place all bids will be publicly opened and read aloud.

After April 9, 1952, Instructions to Bidders, form of Proposal, form of Contract, form of Performance Bond, Plans and Specifications may be examined at the office of the Commission, above address, and copies thereof obtained upon payment of $10.00 for each set, which amount is not returnable.

The names, location and approximate quantities of major items for the three approaches are as follows:

PENNSYLVANIA APPROACHES
Contract No. 104—Delaware Water Gap Bridge
Earthwork ..... 86,000 c.y.
Pipe Drains (6-in. to 48-in.) ....3,300 l.f.
Inlets, Manholes and Valve Pits..39 units
Concrete Curb and Gutters.....2,000 l.f.
Concrete Pavements .....8,900 s.y.
Contract No. 204—Portland-Columbia Bridge
Earthwork .....230,000 c.y.
Pipe Drains (6-in. to 30-in.) ....20,000 l.f.
Inlets, Manholes and Valve Pits..59 units
Concrete Pavements .....24,000 s.y.
Concrete Curb and Gutter.....7,100 l.f.
Topsoil, Seeding and Mulching.52,000 s.y.
Contract No. 304—Milford-Montague Bridge
Earthwork .....28,000 c.y.
Pipe Drains (6-in. to 30-in.) ....2,600 l.f.
Inlets and Manholes.....17 units
Concrete Pavements .....8,300 s.y.
Concrete Curb and Gutter.....1,600 l.f.

Proposals may be submitted for any one approach; for any two approaches, or for all three approaches.

Each Proposal must be accompanied by a certified check in the amount of not less than five (5) per cent of the amount of the Proposal. If the bidder submits Proposals for more than one contract, a single certified check in the amount of not less than (5) per cent of the largest amount of Work included in a proposal will be sufficient.

All checks shall be made payable to the Delaware River Joint Toll Bridge Commission, which amounts shall be forfeited as liquidated damages if the bidder or bidders fail, within ten (10) consecutive calendar days after written notice that the bidder or bidders have been awarded the contract, to enter into a written contract, with the Commission in accordance with the accepted bid, and to give a Performance Bond satisfactory to the Commission, equal to one-hundred per cent (100%) of total amount of contract.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work, and to the bidder whose proposal is deemed by the Commission to be most advantageous to the public interest.

DELAWARE RIVER JOINT TOLL BRIDGE COMMISSION
Alexander R. Miller, Chairman

April 9, 1952

Bids: April 29, 1952

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:
CONTRACT NO. 86 AND CONTRACT NO. 87

(a) The work to be performed involves the furnishing of all labor and materials for the complete erection of a Service Building with Lunchroom, located at Site 6S, New Jersey Turnpike, known as Contract No. 86 and a Service Building with Lunchroom—Future Restaurant, located at Site 6N, New Jersey Turnpike, known as Contract No. 87. Both building sites are on the Turnpike, in the general vicinity East of Yardville, Mercer County, N. J.

(b) Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, until 10:30 o'clock Eastern Daylight Saving Time on the morning of April 29, 1952, and thereafter in the Veterans' Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey, until 11:00 A.M. Eastern Daylight Saving Time on the same date, at which latter time and place said proposals will be publicly opened and read for the following contracts:
CONTRACT NO. 86—All work combined: 86A—General Construction Work and Food Service Equipment; 86B—Miscellaneous and Ornamental Metal Work; 86C—Plumbing and Drainage, Underground Wells for Water Supply, and Gasoline & Diesel Oil Piping System and Car Hoists; 86D—Heating, Ventilating & Air Conditioning and Refrigeration; 86E—Electrical Work and Lighting Fixtures.
CONTRACT NO. 87 includes generally the same as 86, 86A through 86E.

(c) Contract Documents may be seen and may be inspected by prospective bidders during office hours after April 9 1952, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, and at the office of Alfred Fellheimer —Steward Wagner, Architects and Engineers, 155 East 42nd Street, New York 17, New York, General Architects for the Authority.

(d) Contract Documents will be furnished for $5.00 for the set for Contract No. 86 (including 86A through 86E), and $5.00 for the set for Contract No. 87 (including 87A through 87E), upon application to the Authority. The payment will not be refunded and the Contract Documents are not required to be returned.

(e) Prospective bidders are advised that structural steel for both buildings 6N and 6S has been completely fabricated and is available at the plant of a local steel fabricator.

(f) Proposals must be made upon the standard proposal forms in the manner designated in these Specifications, and must be enclosed in sealed, special addressed envelopes bearing the name and address of the bidders and the number of the Contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority and a proposal bond, each for not less than five (5) percent of the amount of the Proposal, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above, on or before the hour named. Copies of the Proposal form to be used for submitting proposals, of the form for the proposal bond, of the form to be used for the financial statement and for the plant and equipment statement to be submitted with the proposal, and of the special addressed envelope are furnished in detached form with the Contract Documents.

(g) In view of the absence of the usual requirement for prequalification of bidders, or for any other reasons, the Authority reserves the right to make the ward and settle the Contract upon such proposals as may, in its sole judgment be in the best interest of the Authority, having regard for the past experience, availability, organization, financial position and other qualifications of the bidders. The Contract will be awarded on proposals rejected within fifteen (15) days from date of opening proposals. The right is reserved to reject any or all proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

Dated: April 4, 1952

U. S. Government

BIDS FOR PATROL BOAT—Memphis District Corps of Engineers, U. S. Army, P.O. Box 97, Memphis 1, Tenn. Sealed bids will be received here until 11:00 a.m., C.S.T., April 22, 1952, and then publicly opened for construction of a steel, Diesel, twin-screw, 115-foot patrol boat. $10.00 deposit required on plans. Information on request.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3704) will be received at Building 53, Denver Federal Center, Denver, Colorado, until May 29, 1952, for furnishing labor and materials for: Eklutna Power Plant, Eklutna Project, Alaska. Location: 33 miles northeast of Anchorage, Alaska. Principal items are: Excavation, 90,000 cu.yds.; driving steel H bearing piles, 84,000 lbs.; furnishing and handling cement, 8,300 barrels; furnishing and replacing reinforcement, 912,000 lbs.; concrete, 6,200 cu.yds.; furnishing and installing corkboard, 14,000 sq.ft.; furnishing and erecting structural steel, 320,000 lbs.; and other work. Completion time 820 days. For particulars, address Bureau of Reclamation, Palmer, Alaska; or Building 53, Denver Federal Center, Denver, Colorado.

Read the Official
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OFFICIAL PROPOSALS

Bids: April 30, 1952

New York State Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, Albany, N. Y.—Pursuant to the provisions of the Highway Law, the Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, April 30, 1952, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of work
		DISTRICT No. 1				
		G. L. NICKERSON, 353 Broadway, Albany, N. Y.				
Essex	FASS 50-1 (Comp.)	Proj. S-1047(2) Completion of Tahawus-Schroon River, Pt. 1 (Co. Rd.)	4.44	D. S. T. Graded Gravel	$11.000 Plans $15	$188,000
		DISTRICT No. 2				
		LACY KETCHUM, 109 No. Genesee St., Utica 1, New York				
Fulton	FARC 52-26	Proj. F216(2); F604(3); F419(4) Mayfield Village, SH 5194 Mayfield-Northville Pts. 1 & 2, SH 363-541 Northville-Chapmans Corners, SH 362 Northville Village, North, SH 5065	4.96	9" Cem. Conc. Pavt. 24' Wide = 4.89 mi. Asp. Conc. Ty. IA, Opt. = 0.07 mi.	$36,000 Plans $15	$645,000
		DISTRICT No. 3				
		WM. ROBINSON, Weigh Lock Bldg., Syracuse 1, New York				
Onondaga	O. T. 52-4 R. C. 52-32 S. T. 52-4	N. Y. State Thruway-The Ontario Section-Subdivision 7 (Warners-Liverpool) Cold Spring-Liverpool, SH 670; 2 Marginal Highways; Co. Rd. 64; Co. Rd. 31; Co. Rd. 194; Relocating Onondaga Lake Pkwy.	9.67	9" Cem. Conc. Pavt. 26-25' Wide & Var. = 7.10 mi Asp. Conc. Ty. I-A Opt. = 2.38 mi. Misc. Work = 0.19 mi. Hy. Sep. Alpha I-Beam 4 Sp. 348' Hv. Sep. Alpha I-Beam 4 Sp. 209'-5" Hv. Sep. Alpha I-Beam 4 Sp. 251' RR Sep. Rig. Frame Arch 42'-4" Hy. Sep. Alpha I-Beam 3 Sp. 160'-8" Hy. Sep. Alpha I-Beam 4 Sp. 290'	$270,000 Plans $50	4,803,000
Onondaga	O. T. 52-7 R. C. 52-34 S. T. 52-10	N. Y. State Thwy.-The Ontario Section-Subdivision 6 (Jordan-Warners) Jordan Village, No. Main St., SH 1505; Jordan-Cross Lake SH 655; Co. Rd. 38; Co. Rd. 64	9.12	8" & 9" Cem. Conc. Pavt. 26-25' Wide & Var. = 8.76 mi. Asp. Conc. Ty. I-A, Opt. = 0.36 mi. Hy. Sep. 4 Sp. Alpha I-Beam 196'-3¾" Hy. Sep. 3 Sp. Alpha I-Beam 196'-2¼" Hy. Sep. 4 Sp. Alpha I-Beam 243' RR Sep Alter. to 104.9' Pl. Gird.	$110,000 Plans $50	$2,091,000
		DISTRICT No. 6				
		H. F. BRUSH, State Office Bldg., Hornell, New York				
Steuben	P. S. C. 9418	Elimination of Grade Crossing of the Erie RR, D. L. & W. RR & N. Y. C. RR with various streets in the City of Corning and the villages of South Corning, Riverside and Painted Post	....	Buildings & Facilities at the Engine Terminal	$12,000 Plans $50	$208,000
		DISTRICT No. 8				
		J. S. BIXBY, Pleasant Valley Road, Poughkeepsie, New York				
Columbia & Dutchess	F. A. R. C 52-6	Proj. F-350(20) Hillsdale-Copake Iron Works, SH 5347 Copake Iron Works-Copake SH 5645 Copake-Mt. Rigs Pts. 1 & 2 SH 8009 Millerton-County Line SH 709	7.83	9" Cem. Conc. Pavt. 24' Wide	$90.00 Plans $25	$1,724,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSAL

RATE: The rate for Official Proposal Advertising is $1.50 per line (or fraction) per insertion.

COPY RECEIVED: up to 10:30 A.M. Friday for issue out following Thursday subject to space open for last minute ads.

SEND COPY: to Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Bids: April 29, 1952

East Delaware Tunnel Outlet Works

CONTRACT 417

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, April 29, 1952, for Contract 417, for the construction of the outlet works of the East Delaware tunnel of the Delaware aqueduct, in the Town of Neversink, Sullivan county, New York. The work comprises the construction of about 88 feet of concrete covered and lined steel pipe conduit ten feet six inches in diameter, about 106 feet of concrete covered and lined by-pass pipes 54 inches and 64 inches in diameter, the substructure of a powerhouse, an outlet chamber, a stilling chamber, a discharge channel and appurtenances of all of these structures, including Venturi meters and piping, all as set forth in the specifications.

No bill will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of seventy-five thousand dollars ($75,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders, desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS P. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: May 1, 1952

North Metropolitan Relief Tunnel

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT
COMMISSION

Sealed proposals will be received at the office of the Metropolitan District Commission, 20 Somerset Street, Boston, Mass., until 2:00 P.M., Eastern Daylight Saving Time, Thurs., May 1, 1952, and then publicly opened for Contract 190, for the construction of the North Metropolitan Relief Tunnel of the North Metropolitan Sewerage District, from the existing Shaft 2 in the City of Chelsea to a proposed site for Shaft 1 on Deer Island. The work consists of sinking and lining Shaft A on Deer Island and excavating and lining about 3¾ miles of tunnel, 10 feet finished inside diameter, between Shafts 1 and 2, to serve the North Metropolitan Sewerage District, and sinking and lining Shaft C on Deer Island and excavating about 200 feet of spur tunnel from the shaft as part of the proposed Boston Main Drainage Tunnel, to serve the South Metropolitan Sewerage District, and other appurtenant work. Shafts 1 and C will be about 100 feet apart, 14 feet in diameter, and approximately 300 feet deep. Each bidder shall deposit security in an amount of not less than $180,000. A bond in at least the full amount of the contract will be required of each successful bidder to secure the faithful performance of the contract, and for the payment of all persons performing labor or furnishing materials in connection therewith. Special attention is called to the requirements as to conditions of employment to be observed and to the minimum rates of wages prescribed by the State Commissioner of Labor and Industries. A schedule of such rates is included in the contract and a copy may be obtained at the office of the Metropolitan District Commission. The information for bidders, and the prescribed forms of proposal, contract, and performance bond, and plans and specifications may be examined at the above address, and copies thereof obtained from Frederick W. Gow, Chief Engineer of the Construction Division, upon the deposit of $15, to be refunded only to bidders or others returning them within ten days after the opening of bids. The site of the work and the existing conditions at Shaft 2, in the City of Chelsea may be seen by applying at the office of the Chief Engineer, 20 Somerset Street, Boston, Mass. The Commonwealth reserves the right to waive any informality in, or to reject, any or all proposals. No bidder may withdraw his bid within thirty days after the actual date of the opening thereof. A proposal which includes for any item a bid that is abnormally low or high may be rejected as unbalanced.

EDGAR F. COPELL, Commissioner
March 27, 1952

OFFICIAL PROPOSALS

Bids: April 23, 1952

Soil Explorations Spec. SM-36

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on April 23, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW YORK STATE THRUWAY, CATSKILL SECTION, SUBDIVISION NO. 5, NEW PALTZ TO NEWBURGH, ULSTER AND ORANGE COUNTIES, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-36.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, New York
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $32,375.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,618.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

Bids: May 1, 1952

Installation of Gas Piping at Port Authority Bus Terminal

THE PORT OF NEW YORK AUTHORITY
PROPOSAL NO. 763

Sealed proposals for all labor, material and equipment necessary to install gas piping at the Port Authority Bus Terminal, New York City, will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., N. Y., until 11:00 A.M. (EDST) Thursday, May 1, 1952, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, April 17, 1952

Bids: April 29, 1952

Plumbing Equipment, Etc.

CONTRACT 326

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, April 29, 1952, for Contract 326, for furnishing, delivering, installing and testing plumbing equipment and appurtenances for the Rondout, West Branch and Kensico South effluent chambers, the drainage chambers at Shafts 6, 13 and 23, the coagulating plant at Shafts 17 and the Kensico comfort stations of the Delaware aqueduct, and for performing appurtenant miscellaneous construction, all as set forth in the specifications. The locations of the proposed work are in the Towns of Wawarsing, Ulster county, Wappinger, Dutchess county, Carmel, Putnam county and Bedford, North Castle, Mount Pleasant and Yonkers, Westchester county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of two thousand dollars ($2,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: May 1, 1952

Repaving Two Sections of Tunnel Roadway Lincoln Tunnel

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M 146

Sealed proposals for furnishing all labor, material and equipment to Repave Two Sections of Tunnel Roadway, South Tunnel (one section in New Jersey and one Section in New York) will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., New York 11, until 11:00 A.M., Thursday, May 1, 1952 (EDST) at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, New York

Bids: May 15, 1952

Sewerage Treatment Plant

TOWN OF STRATFORD
CONNECTICUT

Sealed proposals for construction of a Sewage Treatment Plant, Contract XIV, will be received by the Town of Stratford at the office of the Town Manager, Town Hall, Stratford, Connecticut, until 8:00 P.M., Eastern Daylight Saving Time, on May 15, 1952, and then in the Council Chamber publicly opened and read. No bids will be accepted after said hour.

Information for Bidders, Proposal forms, specimen Contract, Plans and Specifications and other pertinent Contract documents may be examined at the offices of Bowe, Albertson & Associates, Engineers, 110 William Street, New York City, New York, and at the office of the Town Manager, Town Hall, Stratford, Connecticut, between the hours of 10 A.M. and 4 P.M. daily, except Saturdays, Sundays and holidays, and obtained upon making a deposit of Twenty-five ($25.00) dollars, which amount will be refunded to bidders within thirty (30) days after the proposals are opened and upon return of the data undamaged.

Extra copies of specifications may be obtained at the cost of Ten ($10.00) dollars each, extra copies of plans may be obtained at the cost of Fifteen ($15.00) dollars each which sums will not be refunded. Extra sheets may be obtained at the cost of One ($1.00) dollar each which sum will not be refunded.

Cash, or a certified check or bid bond made payable to the order of the Town of Stratford, Connecticut, in the amount of 5% of the bid must be deposited by each bidder with his bid as a guarantee that, in case the contract is awarded to him, he will execute such contract and furnish a satisfactory Performance and Labor and Material Bond in the full amount of the bid, satisfactory to the Town Council as to form and sureties. Acceptance of the bid will be contingent upon fulfillment of this requirement by the bidder and on failure to do so, he shall forfeit the deposit.

The Town of Stratford reserves the right to reject any or all bids, to waive any informalities or to accept the bid which in its judgment will be for the best interests of the Town of Stratford.

TOWN OF STRATFORD,
CONNECTICUT
By: Harry B. Flood
Town Manager

March 20, 1952
BOWE, ALBERTSON & ASSOCIATES
Engineers

Bids: April 23, 1952

Soil Exploration, Spec. SM-35

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on April 23, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW YORK STATE THRUWAY, HUDSON SECTION, SUBDIVISION 7, SUFFERN TO HARRIMAN, ROCKLAND AND ORANGE COUNTIES TOWNSHIPS OF RAMAPO AND TUXEDO AND VILLAGE OF HARRIMAN, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-35.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $29,035.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,452. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

U. S. Government

Department of Commerce, Bureau of Public Roads, March 31, 1952. SEALED BIDS will be received at the office of the Bureau of Public Roads, Gatlinburg, Tennessee, until 1:30 P.M., E.S.T., APRIL 29, 1952, for Project 3A5 (Roadwork), Great Smoky Mountains National Park, Sevier County, Tennessee. From near Park Headquarters west 1.547 miles on the road to Fighting Creek Gap. The approximate quantities of the more important items are 29,250 cu.yd. Excavation, 8,500 Tons Crushed Gravel or Crushed Stone, 225 cu.yd. Stone Masonry and 550 units of Seeding. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the office of the Division Engineer, 1440 Columbia Pike, Arlington, Virginia, or at the address given above. H. J. Spelman, Division Engineer.

CONTRACTORS WATCH THIS SECTION
for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

Bids: May 7, 1952

Bridge in Patapsco Development

CITY OF BALTIMORE
DEPARTMENT OF PUBLIC WORKS
BUREAU OF WATER SUPPLY

Sealed bids, or proposals, in duplicate, addressed to the Board of Estimates of the Mayor and City Council of Baltimore, and marked "Sealed Bid or Proposal for
Furnishing and Constructing
a Bridge in the
Patapsco Development"
will be received at the office of the Comptroller, Room 204 City Hall, Baltimore 2, Maryland, until but not after May 7, 1952 (positively no bids will be received after 11:00 o'clock A.M.) at eleven (11) o'clock A.M. Eastern Daylight Time, and at 12 o'clock noon on said date they will be publicly opened and read by the Board of Estimates in Room 231 in said City Hall.

The work to be done under this contract consists in general of furnishing all labor and material for and constructing complete a composite plate girder bridge and concrete piers and abutments, to be known as the Liberty Road Bridge over the North Branch of the Patapsco River.

The site of the work is located approximately six hundred (600) feet downstream from the present Liberty Road Crossing of the North Branch of the Patapsco River.

The construction includes, but is not limited to, the following items:

Section A—Substructure

Excavation	approx. 3600 cubic yards
Concrete	approx. 5770 cubic yards
Portland Cement	approx. 9300 barrels
Reinforcing Steel	approx. 1,107,000 pounds
Low Alloy Steel	approx. 153,000 pounds
Steel Piles	approx. 3346 linear feet

Section B—Superstructure

Concrete	approx. 1790 cubic yards
Portland Cement	approx. 2910 barrels
Reinforcing Steel	approx. 334,000 pounds
Fabricated Structural Steel	approx. 3,063,000 pounds
Metal Railing	approx. 3434 linear feet
Bituminous Wearing Surface	approx. 620 tons

Bids are asked for on the Substructure (Section A) and on the Superstructure (Section B) separately and combined.

Any bidder may bid on Section A or Section B or on both sections without bidding on the combined bid, but any bidder who bids on the combined bid shall also submit individual bids on Section A and Section B.

The "Bid Total" of the combined bid need not equal the sum of the "Bid Totals" of Sections A and B.

Bids when filed shall be irrevocable.

Specifications, proposal forms, drawings, and other contract documents may be obtained at the office of the Water Engineer, Room 503 Municipal Office Building, Baltimore 2, Maryland, on and after April 18, 1952. A charge of Ten Dollars ($10.00) will be made for each set of specifications, etc., and this amount will not be refunded.

Each bid or proposal must be accompanied by a certified check of the bidder drawn upon a solvent clearing-house bank, payable to the order of he Mayor and City Council of Baltimore. The amounts of the certified checks shall be as follows:

For a bid on Section A only	$10,000.00
For a bid on Section B only	$15,000.00
For bids on both sections only or For a combined bid	$25,000.00

The Board of Estimates reserves the right to reject any and all bids, and/or to waive technical defects if, in its judgment, the interests of the Mayor and City Council of Baltimore may so require.

Bond in the amount of the contract price will be required of the successful bidder.

Attention of the bidders is called to the minimum wage rates to be paid on this project.

APPROVED:
J. S. STROHMEYER
WATER ENGINEER

Bids: April 28, 1952

Advertising Display Dioramas

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUS TERMINAL
CONTRACT BT-110.053

Sealed proposals for the furnishing and installation of advertising display dioramas in the Port Authority Bus Terminal will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Monday, April 28, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, April 17, 1952

Procurement Department, Room 302, City Hall Annex. Sealed proposals received at this office until 10:30 o'clock A.M., Eastern Standard Time, Monday April 21, 1952, opening in Room 313. Classes 270 Furnishing & Erecting Canvas Tent; 271 Metal Folding Chairs. The form of contracts and bonds required to be entered into may be obtained in Room 715, City Hall Annex, Philadelphia 7, Pa. Charles H. Frazier, Commissioner.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3706) will be received at Denver, Colorado, until May 27, 1952, for furnishing four vertical-shaft, 39,500-horsepower, 163.6-rpm hydraulic turbines for Palisades Power Plant, Palisades Project, Idaho. Delivery is desired within 720 to 1,100 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

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PROPOSAL COLUMNS OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

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your construction funds by letting out each contract at the lowest possible price that is consistent with good work.

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McKIERNAN-TERRY PILE HAMMER

drives 304-ft steel pile

Sets record for Long Pile Driving on Meadville, Pennsylvania relocation job

"We put this 14-in. H pile down 304.3 ft with a McKiernan-Terry S-8 Single-Acting Pile Hammer." That's the statement of L. A. Meyer, superintendent for S. J. Groves & Sons, contractor on this Meadville, Pa. bridge relocation job.

Naturally a powerful McKiernan-Terry Hammer set this impressive pile driving record. With a 26,000 foot-pound blow, the McKiernan-Terry S-8 successfully met varying ground conditions. Piles about 50 ft apart encountered both light and heavy resistance to penetration. Lengths averaged 170 ft with differences of as much as 100 ft between piles next to each other.

On record-making or regular jobs, McKiernan-Terry Hammers always insure profitable pile driving. Complete McKiernan-Terry line includes 16 sizes of hammers and 2 sizes of extractors. Write for bulletin giving full details.

L. A. Meyer, contractor's superintendent, standing alongside the record-depth pile driven by McKiernan-Terry Hammer.

A McKiernan-Terry S-8 Single-Acting Pile Hammer driving long-length steel piles for relocation work on a five-span bridge near Meadville, Pa.

MK 918

OTHER McKIERNAN-TERRY PRODUCTS

McKIERNAN TERRY

MEAD-MORRISON COAL AND ORE UNLOADERS AND BRIDGES
Available in a variety of designs and in capacities of 300 to 1500 tons per hour. Exceptional durability proven by installations in service for half a century. Simple controls afford convenient, comfortable and speedy operation.

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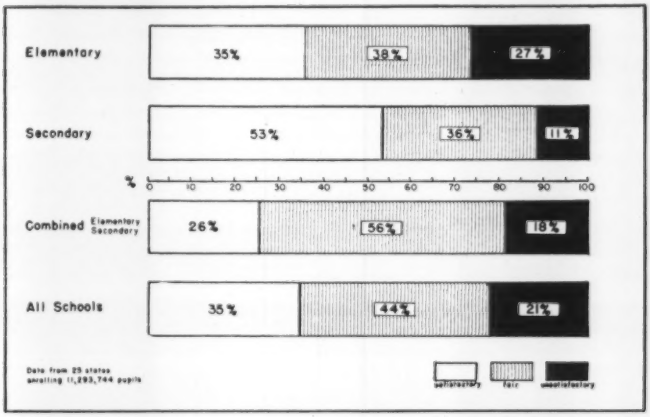
Range of types and sizes take bulk materials loads up to 25 tons. Ruggedness without excess weight.

HONING UP TO 42-IN. I.D. X 55-FT. LONG
Typical of the extensive facilities of McKiernan-Terry for unusual jobs.

McKIERNAN-TERRY CORPORATION • MANUFACTURING ENGINEERS • 13 PARK ROW, NEW YORK 38, N.Y.

Plants: Harrison, N. J. and Dover, N. J.



SCHOOL FACILITIES SURVEY of 25 states indicates that 40% of the school plants are in unsatisfactory condition. These care for 21% of the pupils.

Schools need $10 billion

A progress report on a school facilities survey of the United States presented to Congress early this month shows a dire need for school construction.

Nearly $10 billion is required merely to come abreast of the needs for this fall's enrollments. About $5 billion is estimated to be needed for construction to take care of increased enrollments between the years 1952 and 1957.

The school facilities survey was authorized by the 81st Congress under Title I of Public Law 815. Congress appropriated $3 million to assist the states and territories in making the survey. Of 53 eligible states and territories, 42 are participating.

The survey has been divided into two phases. The first phase is a study of: (1) existing school facilities; (2) current school plant needs; and (3) financial resources currently available to meet those needs. The second phase will deal with long-range statewide plans for school construction, based on findings derived from the first phase.

The progress report presented to Congress is based on first-phase data received from 25 states. It has a sufficiently broad and representative base that Earl James McGrath, U. S. Commissioner of Education, felt justified in projecting the findings to estimate the approximate magnitude of the final results.

• **Origin of school shortage**—The need for school construction is attributed to three major factors: (1) The depression in the 1930's, during which school construction was reduced to a fraction of its normal level, and World War II, when construction came almost to a standstill. (2) Depreciation of existing school plants. (3) Increased national birthrate; public elementary and secondary schools that enrolled 26,258,000 pupils in 1950-51 will enroll an estimated 32,251,000 in 1957-58.

For every four classrooms needed as the decade began—and many of these classrooms were not actually in existence—five will be needed before the end of the decade.

As the school facilities survey began last year, the U. S. Office of Education estimated that 252,000 classrooms would be needed to erase the backlog, 126,000 for normal replacements and 222,000 to take care of additional children—a grand total of 600,000 new classrooms and supplementary facilities to be provided by 1957-58.

The first progress report, Commissioner McGrath says, verifies these estimates.

• **Condition of school plant**—Of the school buildings covered by the progress report, one in six is more than 50 years. Furthermore, 40% are more than 30 years old. Expressed somewhat differently, 7% of the nation's pupils are in buildings more than 50 years old and 27% in buildings more than 30 years old.

While only 6% of the pupils are in one-room schools, 39% of the school buildings now in use contain only one room.

Moreover 68% of the buildings which are covered in the report have six rooms or less. State educational agencies rated school plants as satisfactory, fair, or unsatisfactory, depending on location, educational adequacy, structural stability, essential life-and-health-protective features, fire safety and other pertinent factors. The report indicates that 40% of the school plants are unsatisfactory, and these care for 21% of the pupils enrolled in the 25 reporting states. More than 27% of the pupils in elementary schools are in unsatisfactory school plants.

$50 million school financing proposed in North Carolina

A $25 million school bond issue has been proposed by Dr. Clyde A. Erwin, state superintendent of public instruction in North Carolina.

He also urged that this bond issue be matched with issuance of an additional $25 million in school bonds by individual school districts.

During the current North Carolina school construction program, 12,000 classrooms have been or will be constructed. However, Erwin notes that the additional $50 million is needed to replace obsolete school buildings and to accommodate a still-increasing population.

(*Continued on next page*)

Cost of school plant needed to meet Fall, 1952 enrollment

Estimated cost	18 states	National projection
For rehabilitating and remodeling existing plants	$187,061,181	$469,500,000
For new school construction currently needed...	3,483,741,258	8,744,000,000
For acquiring and improving land for school sites	227,255,742	570,500,000
For additional school buses currently needed....	67,722,402	170,000,000
Totals	$3,965,780,584	$9,954,000,000

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Use with your standard power pavement equipment . . . .

THE ATLANTIC PNEUMATIC ROCK BREAKER

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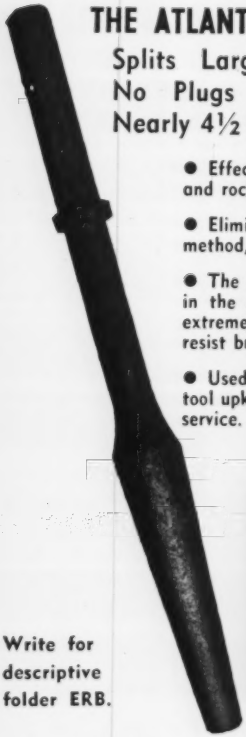
- Effective quick action in removing stones, boulders and rocks from excavations and ditches.
- Eliminates the slow and costly plug and feather method, and the risky and troublesome use of explosives.
- The specially heat-treated Atlantic Tool Steel used in the Atlantic Pneumatic Rock Breaker gives it the extreme toughness to withstand the severest usage and resist breakage regardless of the hardness of the stone.
- Used with standard power pavement breakers. No tool upkeep. Toughter than any stone. A size for every service.



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Non-tempering tool steels for greater safety and speed.

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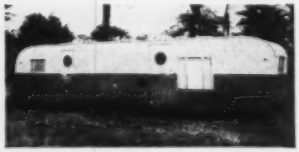

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Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS

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General Office and Shops
PHOENIXVILLE, PA.

Subsidiary—Bethlehem Steel Corporation

Construction business . . .

Government makes public works grant

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The grants, totaling $356,600, were awarded to the Cobb County-Marietta (Georgia) Water Authority to assist the locality with construction of waterworks facilities to cost an estimated $3.3 million.

The U.S. Public Health Service, FSA, approved a grant of $132,650 to assist in constructing a water treatment plant and appurtenances.

The HHFA grant is $223,950 to aid in construction of a pumping station, electric transmission line, reservoir, water supply lines and an access road, and for purchase of an existing 20-in. main.

The Water Authority plans to finance the balance of the cost through the sale of $3-million, 30-year, 3½ serial revenue anticipation certificates.

DPA urges substitution of plastics for copper

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(*Continued on next page*)

FAIRBANKS-MORSE
GENERATING SETS

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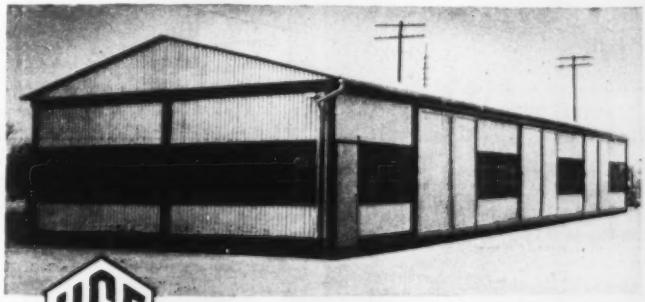
a name worth remembering



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✓ REQUIRES NO STRUCTURAL STEEL
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NEW! 12 Ft. HEAD CLEARANCE STYLE

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WOOSTER, OHIO
PRODUCTS Hollow Metal Doors • Prefabricated Metal Buildings • Window Wells
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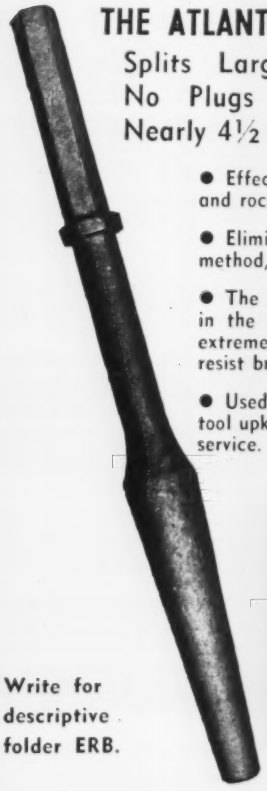

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Nearly 4½ times faster

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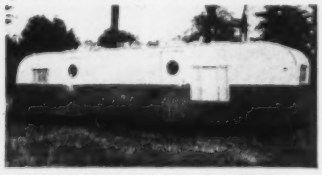

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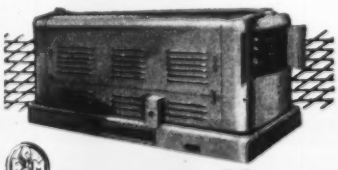
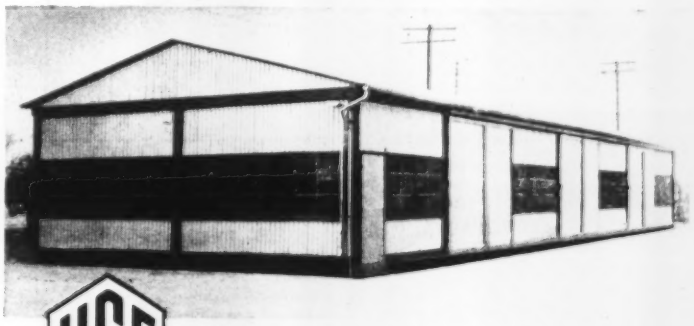
Install a Fairbanks-Morse Generating Set for quick power during emergencies. Available in a capacity to meet your needs. Write Fairbanks, Morse & Co., Chicago 5, Ill.



FAIRBANKS-MORSE,
a name worth remembering



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✓ REQUIRES NO STRUCTURAL STEEL
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Ideal for all light industrial purposes this USF all-steel Utility Building offers rugged permanence or completely salvageable dismantling. Available now in 12' head clearance as well as 10' and in widths of 26' or 30'. Length may be established in multiples of 13' 4" and multiple width buildings are supplied joined at the eaves. Five styles of interchangeable wall panels provide utmost flexibility to your purpose.

NEW! 12 Ft. HEAD CLEARANCE STYLE

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Highway Guard Rail • Bridge Flooring • Corrugated Metal Pipe

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Foundation Co.

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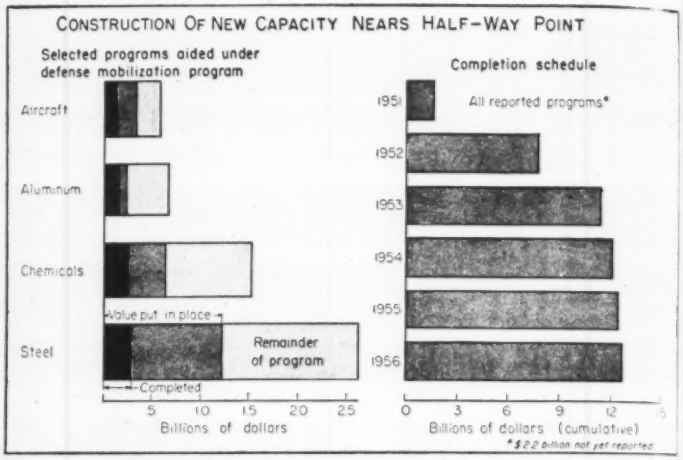
Construction business . . .



DPA alters construction pattern

The government will cut back on fast amortization, direct loans and other devices used to spur construction of industrial plants for defense construction.

The tip-off came in Charles E. Wilson's final quarterly report on defense mobilization (ENR, April 10, p. 29).

His report indicates that there will be little more government assistance for additional industrial building.

But that does not mean industrial construction will come to a halt.

Higher expansion goals for the petroleum, electric power and chemical industries mean more plant starts coming up in those fields.

Here are some of the new goals:

Oil refineries—Capacity to refine 75,000 bbls. a day, to be completed between July 1, 1952 and January 1, 1954.

Electric power—32 million kw, to be added in the three years, 1952-54. Capacity additions in 1951 totaled about 7 million kw.

Chemicals—The mobilizers have upped earlier goals for sulphur and nitrogen and a host of secondary chemicals. This adds up to a continuation of the chemical expansion boom well beyond 1954.

There is also a variety of other types of plant in the $16.6 billion of expansion for which the mobilizers have approved rapid tax amortization.

And there is more plant construction involved in the applications covering another $9.9 billion of plant still to be acted on by the Defense Production Administration.

But, except for the programs with new defense goals, few plants on which starts have not been made will qualify for tax help or other government aid from now on.

• **Deadline rush**—The indication of this came in the first quarter, when some $5 billion worth of plant and equipment benefited from fast tax writeoffs.

The majority were projects started or completed last year. They just beat the March 1 deadline after which DPA refused to consider any application for plant that was already underway.

In the future, the controllers will measure a planned construction project against the government goals for expansion of the type of facilities involved. And in most cases, goals are already in sight.

• **Who will benefit?**—Commercial building, institutional construction and housing will take up the slack in the second and third quarters, planners feel.

Defense officials expect the pattern of construction to develop along these lines for the rest of the year:

Commercial building—Because they require little or no machinery or structural copper, commercial structures stand to gain most from the easing of steel and other materials. A number of previously-banned stores, gas stations, shopping centers and other commercial projects will start getting CMP allotments July 1.

Institutions—Restrictions on building have piled up a backlog of demand for schools, hospitals, churches and public buildings. More con-

(*Continued on next page*)

Construction business . . .

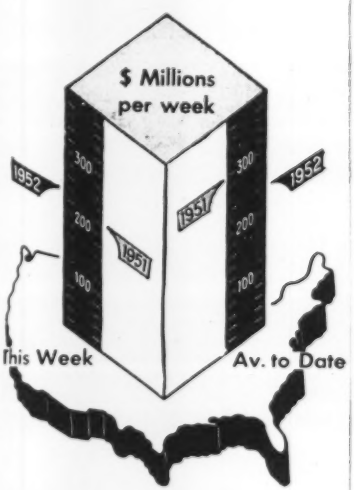
trolled materials have been made available for this type of construction in the April-June quarter. Materials allotments for institutional construction will be boosted again before the end of the year.

Housing—Big apartment buildings and other multiple unit projects will stay under wraps for a while yet because they require more copper than other types of construction. But allotments of controlled materials are easing for them, too.

Home starts may climb to unexpected heights if demand continues. The year may see more than a million starts.

Activity This Week

As reported to ENR
(in millions of dollars)



Contracts by type of work

	This Week	Cumulative 16 wks—1952	1951	% chge
Waterworks	$3.1	$78.2	$77.6	+1
Sewerage	10.3	66.2	98.1	—33
Bridges	3.4	26.4	86.5	+11
Highways	25.5	357.5	289.1	+23
Earthwork, waterways	2.5	168.7	124.5	+36
Buildings:				
Public	45.2	483.1	772.0	—37
Housg., pub	16.3	312.6	182.4	+71
Housg., priv.	47.5	826.1	599.0	+38
Commercial	10.5	158.3	212.3	—25
Industrial	41.1	891.7	1,753.7	—49
Unclassified	29.7	398.5	517.9	—23
Total	$235.1	$3,857.3	$4,713.1	—19

NOTE: Minimum size projects included are: Waterworks and waterway projects, $1,000; other public works, $50,000; industrial buildings, $2,000; other buildings, $500,000.

ENR COST INDEX

Index Base	100	1913	1926	1949
Constr. Cost	Apr. '52	554.12	266.36	116.16
Bldg. Cost	Apr. '52	407.81	220.45	115.42
Volume	Mar. '52	509	207	117

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FINANCE

Legislative balk lets bridge plans proceed

Because California legislators argued a lot but did nothing at all official, legal advisers to the state's Department of Public Works said last week the department can go ahead with plans for $50 million worth of work on approaches to the San Francisco-Oakland bridge.

It happened this way: Some months ago, the California Toll Bridge Authority voted an $80 million Bay Bridge refinancing plan. Under this plan, $50 million in bonds would be sold to provide funds for work on approaches on each side of the bridge.

The Authority agreed to hold up the sale of the bonds until the legislature could give consideration to the plan, and to a companion proposal to refund to the state highway construction fund some $11.5 million paid out of gasoline tax money by the state to maintain the bridge since it was built.

The legislation was duly introduced into a special legislative session—as part of other measures that would have authorized a southern crossing of San Francisco Bay.

Legislators battled furiously over the measures for four weeks—but did nothing until the bills died automatically during closing minutes of the special session.

That, said the lawyers, left the way clear for the authority to go ahead. "The legislature has considered the matter," they said, "and had an opportunity to act. Since nothing was done, the authority can proceed."

Finance briefs . . .

• **Montana gas tax up?**—Searching for additional funds to meet federal-aid highway appropriations, Montana may ask a vote next November to raise its gasoline tax from 6 to 7 cents a gallon.

• **$146 million for L.A.**—Los Angeles voters will be asked to approve bond issues totalling $146 million—half for new school construction— in municipal elections June 3.

• **Dallas to vote bonds**—Dallas voters will be asked on May 1 to approve a $49.9 million bond issue, largest in the city's history, to finance work on water systems and the sanitary sewer system, for paving and widening streets, and for extension and expansion of the municipal airport.

Sewers, pumping plant, N. J.

The Delaware River intercepting sewer-North Section and the 27th street pumping station, is part of Camden's $12,000,000 sewerage project. The sewer is to be completed in 400 and the pumping station in 300 calendar days. Work is well under-way on the main sewage plant, a $4.7 million contract, reported in unit prices ENR, Jan. 24, 1952, page 81. Hveem & Emerson, New York, N. Y., are the consultants. Bidders include:

Intercepting sewer, contract 12

1C Edward H. Ellis & Sons, Inc., Merchantville, N. J.	$791,485
2 Lipsett Incorporated, New York, N. Y.	$925,790
5 Francis A. Canuso & Sons, Philadelphia, Pa.	$1,481,860

Bids: 2-20-52 Items	Unit	Quantity	Unit prices 1 C	2
Earth excavation	cy	34,000	$5.25	$6.95
below plan depth	cy	100	10.00	10.00
Rock excavation	cy	50	15.00	30.00
Foundation cushion	cy	100	15.00	12.00
Bed sand grav or screen	cy	250	7.00	13.00
Woodpiles	lf	5,000	2.50	4.00
Lmbr lid, sheet & shor	Mfbm	435	150.00	120.00
in fndn	Mfbm	50	150.00	192.00
Concrete, class A	cy	200	75.00	80.00
class B	cy	2,550	25.00	22.00
Additional portland cmt	bbl	10	7.00	6.00
Brick masonry	cy	15	80.00	150.00
Steel reinforcement	t	7	300.00	350.00
Misc cast iron work	lb	25,000	0.32	0.25
Misc steel work painted	lb	100	0.55	0.60
Misc steel work galvanized	lb	100	1.00	1.00
E S vit pipe & spec 8"	lf	80	5.00	2.00
18"	lf	1,200	10.00	8.00
Reinf conc culv pipe 36" SS	lf	3,300	25.00	24.00
36" ES	lf	2,300	32.00	28.00
48" ES	lf	1,150	38.00	35.00
Corr culv pipe 60"	lf	410	120.00	145.00
72"	lf	240	160.00	160.00
Vit pipe underdrain 6"	lf	500	2.00	2.00
8"	lf	500	2.00	2.00
Standard manholes	ea	25	680.00	700.00
Extra depth manholes	vf	190	60.00	40.00
Rem & repl std inlets	ea	12	300.00	300.00
Tide gates 24" x 24"	ea	2	600.00	700.00
36" x 36"	ea	2	$1,100	$1,400
48" x 60"	ea	2	2,200	3,500
60" x 72"	ea	4	3,300	4,500
Regulator equip	ls	1	2,500	2,400
Painting	ls	1	500	1,000
Waterproofing	sy	1,500	$2.00	$1.50
Restoring stone sidewalks	sy	10	6.00	16.00
Restoring conc sidewalks	sy	400	6.00	5.00
Resetting stone curbing	lf	100	3.00	8.00
gutters	lf	100	5.00	8.00
combination curb & gutt	lf	100	8.00	12.00
Restoring conc pavement	sy	50	8.00	20.00
Beig block on conc base	sy	900	6.00	7.00
Beig block on sand fndn	sy	1,000	8.00	5.00
asphalt pavement	sy	2,000	5.00	9.00
Temp macadam pavement	sy	1,700	4.00	8.00
Railroad crossing	ls	1	$14,000	$90,000

Pumping station, contract 7A

1C McElwee Courbis Const. Co., Camden, N. J.	$74,686
2 C & T Const. Co., Inc., Collingswood, N. J.	85,364
9 Kolyn Const. Co., Trenton, N. J.	135,327

Bids: 2-6-52 Items	Unit	Quantity	1 C	2
Earth excavation	cy	1,000	$4.00	$2.15
below plan depth	cy	100	5.00	2.15
Rock excavation	cy	50	15.00	1.25
Foundation cushing	cy	10	5.00	5.55
Steel sheet piling	t	55	350.00	207.00
Structural steel	t	65	600.00	475.00
Lumber left in place	Mfbm	2	100.00	100.00
Concrete, class A	cy	350	50.00	64.25
class B	cy	10	25.00	21.25
Additional Portland cmt	bbl	5	5.00	5.55
Steel reinforcement	t	25	200.00	285.00
Misc cast iron work	lb	100	0.66	1.05
Misc steel work painted	lb	500	0.50	0.85
Misc steel work galvanized	lb	100	0.60	0.90
Misc non-ferrous metal work	lb	100	3.50	5.10
Bell & spigot C I pipe	t	05	300.00	870.00
Flanged C I pipe	t	05	400.00	875.00
Bell & spigot C I pipe ftgs	t	05	300.00	900.00
Flanged C I pipe ftgs	t	2	600.00	760.00
Spec C I pipe ftgs	t	05	800.00	1,125.00
Gate & ck valves 6"	ea	3	75.00	140.00
8"	ea	5	125.00	227.00
10"	ea	2	185.00	410.00
Gate valves 2"	ea	1	15.00	30.00
Painting	ls	1	500.00	438.00
Building	ls	1	$9,000	$19,250
Pumping equip	ls	1	8,000	9,345

Items	Unit	Quantity	Unit prices 1 C	2
Walks	sy	10	$4.50	$5.20
Roadways	sy	105	4.00	7.50
Lawn prep & seeding	sy	220	0.50	1.00
Fencing	lf	250	4.50	5.15

Contract 7b, electrical

1C William E. Snell, Vineland, N. J.	$6,465
2 Electro Const. Co., Philadelphia	8,450

Contract 7c, heating & ventilating

1C Fred W. Schorpp, Inc., Camden, N. J.	2,220
2 Keller & Ragone Co., Inc., Camden, N. J.	3,585

Contract 7d, Plumbing

1C Fred W. Schorpp Inc., Camden, N. J.	1,500
2 Keller & Ragone Co., Inc., Camden, N. J.	1,665

Earthfill dam, Pa.

The Antietam Creek Dam for the Waynesboro, Pennsylvania, Municipal Water Authority is an earth-fill structure with impervious core. Work includes a cut-off wall, upstream blanket of riprap on cushion of sand and gravel; chute-type spillway, 60' wide at crest, paved to filling basin; and an outlet conduit five feet in diameter with terminal outside of spillway. Gannett Fleming Corddry and Carpenter, Inc., Harrisburg, Pa., are consultants. Work began Mar. 7, 1952 for completion Nov., 1952.

Bidders include:

1C Lycoming Const. Co., Williamsport, Pa.	$411,782
2 E. D. Plummer & Sons, Chambersburg, Pa.	$417,116
7 Strayer & Rife, Hanover, Pa.	$582,927

Bids: 2-20-52 Items	Unit	Quantity	Unit Prices 1 C	2
Clear dam, reservoir & other areas	ac	36.6	$440.00	$600.00
Strip & grub dam & spillway areas	cy	16,270	0.45	0.60
Div & contr of stream	ls	1	21,000.00	3,500.00
Exc earth-outlet cond sys	cy	2,050	0.45	2.50
rock-outlet cond. sys.	cy	245	10.00	4.80
earth-cut-off trench	cy	16,850	0.63	1.20
rock-cut-off wall	cy	225	35.00	12.00
Exc forebay, spill chant spill walls & still basin earth	cy	17,850	0.47	0.60
rock	cy	5,900	4.25	2.50
V.C. pipe 4"-spill, spill wall, still bsn & toe dr	lf	1,250	2.00	2.60
V.C. pipe 10" toe dr	lf	230	4.85	3.25
12" toe dr	lf	155	5.65	6.20
Embank, rol matrls from const exc	cy	23,500	0.21	0.20
borrow	cy	112,000	0.73	0.80
Rock fac upstrm dam slope	cy	4,635	3.00	3.75
Crush stone blanket rock facing	cy	2,835	6.70	6.00
Rock toe	cy	1,610	0.45	2.75
Stone topping dam & rt spill berm	cy	300	7.25	6.00
Dump stone riprap forebay & still basin	cy	490	3.50	2.50
Pipe railing in place	lf	480	6.60	2.50
Seed dam & spill slopes & spoil area toe of dam	sy	11,400	0.35	0.30
Diamond core drilling	lf	1,985	5.40	7.45
Grout pipes	lf	1,860	1.25	1.20
Pressure grouting	sk	3,000	5.30	4.80
Conc class B-cut-off wall footing under dam & spillway ogee	cy	185	30.00	30.00
Conc class A-cut-off wall under dam	cy	186	40.75	54.00
Conc class B pipe suppt, intake, wingwalls, cond plugs & cond bases	cy	30	67.50	80.00
Conc class A, cond & coll	cy	240	55.00	60.00
intake tower	cy	89	74.50	90.00
spillway ogee	cy	128	51.50	50.00
spillway slabs	cy	462	36.85	36.00
spillway walls	cy	1,150	41.95	48.00
intake tower bridge & spillway bridge & pier	cy	23	102.75	96.00
Reinforcing steel	lb	80,000	0.13	0.12
Metal water stops	lf	2,640	0.88	0.90
Misc metal work, bronze	lb	700	1.62	1.10
cast iron	lb	350	0.65	0.30
steel	lb	1,000	0.05	0.25
F&p CI pipe & fitngs 10"	lf	138	26.00	7.80
14"	lf	111	25.00	11.00
18"	lf	85	16.00	16.00
Gate valves, compl, 10"	ea	2	400.00	300.00
14"	ea	1	800.00	500.00
Extra str RC culv pipe, 5' tongue & groove joints	lf	268	34.30	34.25
Intake tower house, compl	ls	1	1,225.00	1,050.00
Allowance lab tests	ls	1	2,000.00	2,000.00

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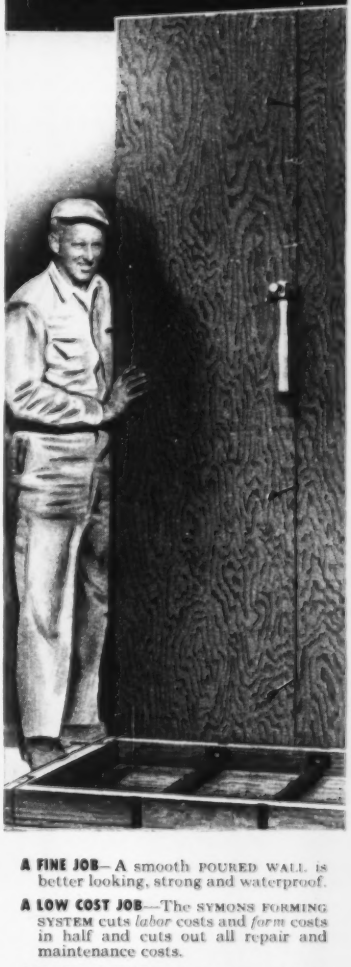

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Bids Asked—Low Bidders—Contracts Awarded—First Section

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NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **RHODE ISLAND**—State Hy. Dpt., State House, Providence.

M. A. Gammino Constr. Co., 728 Valley St., Providence, R. I. CA $1,691,727, 2 separate two-lane roadways, etc. R. I. Cont. 5207, F. A. Proj. LI-50 (30), Cranston and Warwick. Bids Mar. 19, awarded Apr. 3. CD 3/25, under LB.

Ideal Plumbing & Heating Co., 174 Orchard St., New Haven, Conn. LB $269,590, Base Bid 1; LB, $169,158, Base Bid 2, Item 1, Proj. B-A-651D-fuel oil storage facilities, Norwich State Hospital, NORWICH, CONN. State P. Wks. Comr., Hartford, Conn.

BUILDINGS

LOW BIDS AND CONTRACTS

The Austin Co., 450 W. First Ave., Roselle, N. J. CA $750,000. 2 dormitories, dining hall, kitchen, Brookline Ave. and Pilgrim Rd., BOSTON, MASS. Simmons College, The Fenway, Boston, Mass.

Mozzicato Constr. Co., 168 Mystic St., Medford, Mass. CA $323,000, rest HOME, EAST BOSTON, MASS. Don Orione Home for Aged, 150 Orient Ave., East Boston, Mass. Bids Apr. 3. CD 3/20.

Our Lady of Mount Carmel, c/o Diocese of Worcester, Most Rev. J. J. Wright DD, 52 High St., Worcester, Mass., rejected bids Mar. 26. Education center, Mulberry St., WORCESTER, MASS. Est. $300,000. CD 3/11.

▲ **Geo. E. Emerson Inc.,** 34 Britton St., Pittsfield, Mass. CA $1,368,000. South Junior High School, Pomeroy Ave.;

Carroll Verge & Whipple Co., 370 Wahconah St., Pittsfield, Mass. CA $1,324,891. North Junior High SCHOOL, Springside Park, PITTSFIELD, MASS. City, School Dpt., Pittsfield, Mass. CD 3/18, under LB.

The Monaco Constr. Co., 104 Reservoir Ave., Bridgeport, Conn. LB $614,000, SCHOOL, Roberts Ave., DANBURY, CONN. Town School Bldg. Comn., Danbury, Conn. Bids Apr. 3. CD 3/27.

▲ **B. Perini & Sons, Inc.,** 73 Montvale Ave., Framingham, Mass. LB $865,547, Item, $820,557, Item 2, $784,407, Item 3, PHA Conn 1-D-1, HOUSING, Sub-Base Reservation, Midway Oval and Gary Rd., GROTON, CONN. Public Housing Auth., 123 Trumbull St., Hartford, Conn. Bids Apr. 4. CD 3/25.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 2 Pennsylvania
STREETS AND ROADS
April 22 Maryland — April 23, 30 New York
May 2 Pennsylvania

BIDS ASKED—BUILDINGS

† **Del., Bethany Beach**—BLDGS., etc.—B.A. 4/24—Dpt. Army, 125 N. Broad St., Phila., Pa., buildings and roadways, $850,000. Extended date. W. Ellis Preston, 903 Jefferson St., Wilmington, archt. CD 4/2.

▲ **Pa., Phila.**—HIGH SCHOOL—B.A. 4/25—Bd. Educ., 21 and Winter Sts., Junior High School, Algon and Robbins Sts., etc., $3,750,000. George M. Ewing, Western Savings Fund Bldg., archt. CD 11/28.

New Jersey—SERVICE STATIONS, etc.—B.A. 4/29—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Zone 8, two service stations and lunchrooms at New Jersey Turnpike near Yardville, Sites 6N and 6S, Mercer Co. Plans deposit $10. Felheimer & Wagner, 155 E. 42 St., New York 7, N. Y., archts.

Pa., Pottstown—TOOL HOUSE—B.A. 5/1—Bethlehem Steel Co., Pottstown, tool house and sanitary sewer, $150,000. G. E. Clayton, c/o owner, engr.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Grove, Shepherd, Wilson & Kruge, Inc.,** 247 Park Ave., New York 17, N. Y., CA $4,453,135, general constr., South Shore Destructor Plant, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Mar. 28. CD 4/3, under LB.

Villard Contg. Co., 25 Main St., Hastings, N. Y., CA $598,754, sewage treatment plant, sewerage sys. at Annsville Creek, PEEKSKILL, N. Y. City, City Hall, Peekskill, N. Y. Bids Mar. 14. CD 2/25.

NEW JERSEY—State Hy. Dpt., State Hy. Office Bldg., Trenton.

George M. Brewster & Son, 275 W. Ft. Lee Rd., Bogota, N. J., LB, $728,590, paving Palisades Interstate Parkway, (N. J. Sections 2E and 1C) from Clinton Ave. to Hillside Ave., Englewood Cliffs and Tenafly, Bergen Co.;

S. J. Groves & Sons Co., Swedesboro, N. J., LB, $463,222, channelized intersection 0.389 mi. on Route 42 Section 3B at intersection of Route 45, Haddon Twp. and Camden, Camden Co. Bids Apr. 8. CD 3/20.

Union Paving Co., 1227 N. Broad St., Phila., Pa., LB $100,863, Schedule F-1, paving; LB $106,767, Schedules B 12-15-16, paving;

Eastern Asphalt Co., Packard Bldg., Phila., Pa., LB $107,673, Schedule F-3, paving;

Asphalt Paving & Supply Co., Conshohocken Rd., Norristown, Pa., LB $64,493, Schedules B 2, B 4, B 6, paving, various locations;

James D. Morrissey, Inc., 9119 Frankford Ave., Phila., Pa., LB $60,844, Schedules B-3, B-10, B-13, paving various locations, LB $76,997, Schedule F-2, paving;

Kelly Paving & Constr. Co., 1347 E. High St., Phila., Pa., LB $82,513, Schedules, D 1, D 3 and E, paving;

General Asphalt Paving Co., 6851 Rising Sun Ave., Phila., Pa., LB $62,804, Schedules B-1, B-14, paving various locations, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Paul MacMurray, c/o owner streets comrs. CD 10/30/44.

Intercounty Constr. Co., 4720 Baltimore Ave., Hyattsville, Md., LB $247,145. Contr. 905-W, water main from Wheaton to Sonoma St., Montgomery Co., HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Apr. 2. CD 3/20.

BUILDINGS

LOW BIDS AND CONTRACTS

Mahony-Troast Constr. Co., Inc., 657 Main St., Passaic, N. J., CA, $500,000, 60,000 sq. ft. PLANT addn., PASSAIC, N. J. U. S. Rubber Co., 1 Market St., Passaic, N. J.

Fred J. Brotherton, Inc., 185 Atlantic Ave., Hackensack, N. J., LB, $894,653, Morris Hills Regional HIGH SCHOOL, ROCKAWAY N. J. Morris Hills Regional Dist. Bd. Educ., 33 Union St., Rockaway, N. J. Bids Mar. 25. CD 2/13.

Fowler Thorne Co., 311 N. Montgomery St., Trenton, N. J., LB $463,835, general construction Junior High SCHOOL, Hamilton Ave. and Klockner Rd., TRENTON, N. J. Hamilton Twp. Bd. Educ., 2069 Greenwood Ave., Trenton, N. J. Bids Apr. 2. CD 3/4.

▲ **Marcello Mezzulo, Inc.,** 132 Pearl St., Port Chester, N. Y., $840,000 general constr., Mill Road SCHOOL, CA $302,200, general constr., Greenvale SCHOOL, TUCKAHOE, N. Y. Bd. Educ., Town of Eastchester, Stewart Pl., Tuckahoe, N. Y. Bids Mar. 21. CD 3/6.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

Wark & Co., 1920 Sansom St., Phila., Pa., CA $500,000. OFFICE, MORRISVILLE, PA. National Tube Co., Frick Bldg., Pittsburgh, Pa. Bids Dec. 15. CD 12/28.

▲ **DeKalb Constr. Co.,** Church Lane and Chester Ave., Yeadon, Pa., Separate Contracts. $1,651,700, RESIDENTIAL DEVELOPMENT, DeKalb Pike, NORRISTOWN, PA. Henry S. Berg, 1412 Walnut St., Phila., Pa., archt.

Bowen Williams Corp., 8501 Temple Rd., Phila., Pa., Separate Contracts. Approx. $620,000. RESIDENTIAL DEVELOPMENT, Michener Ave., PHILA., PA.

▲ **Psaty & Fuhrman, Inc.,** 369 Lexington Ave., New York, N. Y., LB $8,485,000. Diamond HOUSING, 22nd St., etc., PHILA., PA. Phila. Housing Auth., 42 S. 15 St., Phila., Pa. Bids Mar. 20. CD 2/7.

Springview Corp., 7060 Garrett Rd., Upper Darby, Pa., Separate Contracts. $664,000. RESIDENTIAL DEVELOPMENT, Springfield Rd., SPRINGFIELD, PA.

Pickard Limited, Inc., 505 Lancaster Ave., Haverford, Pa., Separate Contracts. Approx. $450,000. RESIDENTIAL DEVELOPMENT, S. Devon Ave., WAYNE, PA.

▲ **Hughes Foulkrod Co.,** 1505 Race St., Phila., Pa., CA $2,700,000, Mfg. PLANT and sewage treatment PLANT, CHESWOLD, DEL. International Latex Corp., Dover, Del. Carson & Carson, 16 S. Broad St., Phila., Pa., engrs. for sewage tr. plant. Albright & Friel, Inc., 121 S. Broad St., Phila., Pa., archt. CD 11/29.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
April 25 Kentucky
STREETS AND ROADS
April 23 Louisiana — April 25 Kentucky

BIDS ASKED—BUILDINGS

▲ **La., New Orleans**—CHURCH, etc.—B.A. 5/6—First Baptist Church, 3436 St. Charles Ave., concrete, steel church and educational bldg., 4301 St. Charles Ave., $1,100,000. Plans deposit $50, Carl L. Dischner & Assoc., Pere Marquette bldg., archts. CD 12/19/48.

N. C., Jacksonville—HOSPITAL—B.A. 5/6—Bd. Comrs. Onslow Co. Victor Venters, chn., Jacksonville, 50-bed hospital, $750,000. Plans deposit $50 general constr., $25 mechanical. George Watts Carr, 111 Corcoran Bldg., Durham, archt. CD 9/7.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Wright Contg. Co.,** 504 25 Ave., Columbus, Ga., CA, $867,657, streets, water lines, sanitary and storm sewers at Marine Corps Depot of Supplies, NAY 70665, ALBANY, GA. Dpt. Navy, Officer in Charge of Construction, Box 369, Naval Base, S. C. Bids Mar. 27. CD 4/2, under LB.

† **Savannah Machine & Foundry Co.,** Lathrop Ave., Savannah, Ga., CA $617,050, fabrication and erection structural steel for hangar [illegible] Hunter Air Force Base, SAVANNAH, GA. U. S. Eng., Post Office Bldg., Savannah, Ga. Bids Mar. 3.

▲ **FLORIDA**—State Hy. Dpt., Tallahassee.

Doyle Pope, Quincy, Fla., LB, $161,806, grading, paving Road 77 in Bay Co., and building concrete deck girder bridge on Rd. 392 across Grand Lagoon Bay Co.; LB, $449,815, grading, paving Road 77, Washington Co.;

Cone Brothers Constr. Co., Caesar and Cumberland Rds., Tampa, Fla., LB, $136,513, grading, draining, 2 concrete, steel bridges on State Rd. S-3339, Levy Co.;

Coggins & Deermont, Chipley, Fla., LB, $141,684 grading, paving, culverts State Rd. S-274, Calhoun Co.;

Smith Engr. & Constr. Co., W. Pensacola St., Pensacola, Fla., LB, $129,215, grading, paving Road 30, Okaloosa Co. 1 and paving road S 285-A, Okaloosa Co.;

Brinson Constr. Co., 51 St. and E. Broadway Ave., Tampa, Fla., LB, $763,074, paving, 17 small bridges, State Rd. 90, Collier Co.;

R. H. Wright & Son, Fort Lauderdale, Fla., LB, $714,385, paving, bridge and storm sewer Rd. 5, Indian River Co.;

Hubbard Constr. Co., Orlando, Fla., LB, $194,629 grading, paving Road 545 in Orange and Osceola Counties;

Duval Eng. & Constr. Co., 1746 E. Adams St., Jacksonville, Fla., LB, $245,993, grading, paving concrete steel bridge, State Road S-129, Baker Co.;

Fairchild-Florida Constr. Co., Live Oak, Fla., LB $229,726, grading, paving, draining State Rd. S-257, Jefferson Co.;

Jaxon Constr. Co., 905 Baker Ave., Jacksonville, Fla., LB $358,321, excavating, paving Road 45, Charlotte, Co.;

J. W. Conner & Sons, 3916 E. 8 Ave., Tampa, Fla., LB, $617,798, grading, paving Road 80, Hendry Co. Bids Mar. 31. CD 3/25.

FLORIDA—State Hy. Dpt., Tallahassee,
Brinson Constr. Co., 51 St. and E. Broadway Ave., Tampa, Fla., CA, $763,074, paving, 17 small bridges State Rd. 90, Collier Co. Bids Mar 31. CD 4/9, under LB.

† American Bridge Division of U. S. Steel Co., Box 1033, Atlanta, Ga., CA, $1,216,600, fabricating, erecting structural steel for maintenance hangar at Pinecastle Air Force Base, Inv. 52-128, ORLANDO, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Apr. 4. CD 3/11.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge.
T. L. James & Co., Inc., Box 531, Ruston, La. LB $448,921. patching, wid'n. c. conc. 8.549 mi. Opelousas-Swords Hy., State Rte. 7. S.P. 12-12-07 and 12-11-12, St. Landry Parish;
The White Constr. Co., Lafayette, La. LB $329,730. patching, wid'n. c. conc. 6.523 mi. Crowley-Rayne Hy., State Rte. 2, S.P. 3-10-04, Acadia Parish. Bids Apr. 2. CD 3/20.

BUILDINGS

LOW BIDS AND CONTRACTS

LOW BIDS AND CONTRACTS

▲† J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, N. C., LB $3,703,103, SHOP, STORAGE, ADMINISTRATION and BOQ HEADQUARTERS, Inv. 52-15, FORT EUSTIS, VA. CD 3/24, under LB.

▲ Graham Brothers, Southern States Bldg., Richmond, Va., LB $2,452,400, HIGH SCHOOL at Cradock, NORFOLK, VA. Norfolk Co. School Bd., Norfolk, Va. Bids Mar. 27. CD 2/14.

▲ Norman Flax Funding Co., 120-34 Queens Blvd., Kew Gardens, N. Y., CA. $2,788,889, construct, manage, finance, 400 Wherry Act HOUSING units at Little Creek Amphibious Base, NORFOLK, VA. Pub. Wks. Office, Fifth Naval Dist., Naval Base, Norfolk, Va. CD 3/25, under LB.

▲ Norman Flax Funding Co., 120-34 Queens Blvd., Kew Gardens, N. Y., CA. $3,872,000. 516 Wherry Act HOUSING units, Old Hewitt Farm, NORFOLK, VA. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Mar. 13. CD 2/19.

J. L. Coe Constr. Co., Builders Bldg., Charlotte, N. C., LB $697,200. 56-bed HOSPITAL addn., alterations, KINGSTON, N. C. Lenoir County Hospital, R. A. Thompson, Chn. Bldg. Comm., Kinston, N. C. Bids Mar. 27. CD 3/3.

Percherer & Powell, c/o W. F. Bigoney, archt., 1926 E. Sunrise Blvd., Ft. Lauderdale, Fla. Owner Builds, $500,000, 50 RESIDENCES, FT. LAUDERDALE, FLA.

▲ Beers Constr. Co., 70 Ellis St. N.E., Atlanta, Ga., CA, $1,629,983, STUDENT HALL at University of Florida, GAINESVILLE, FLA. Bd. Control, Education Bldg. Florida State University, Tallahassee, Fla. Bids Mar. 18. CD 4/3, under LB.

Dade Co. Bd. P. Instruction, 275 N.W. 2 St., Miami, Fla. rejected bids Mar. 5. South Dade High SCHOOL, MIAMI, FLA. LB, $581,000. CD 3/12, under LB.

† George C. Parker, Ozark, Ala., CA, $868,884, addnl. facilities, 56 buildings at Ozark, ENG 01-076-52-55, CAMP RUCKER, ALA. U. S. Eng., P. O. Box 169, Mobile 7, Ala. Bids Mar. 18. CD 3/27, under LB.

▲ R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., New Orleans, La. LB $2,918,000. Medical SCHOOL addn., NEW ORLEANS, LA. Louisiana State University, c/o Business Mgr., School of Medicine, 1542 Tulane Ave., New Orleans, La. Bids Mar. 31. CD 3/18.

Southern Builders, Inc., Box 1815, Shreveport, La. LB $789,330. CHURCH, SHREVEPORT, LA. St. Marks Episcopal Church, c/o Annan & Gilbert, archts., 525½ Market St., Shreveport, La. Bids Mar. 28. CD 3/24.

▲ C. H. Jimison Co., Huntington, W. Va. LB $1,250,000. 3 story, bsmnt., brick, rein.-con., HOSPITAL, Bellefonte, COVINGTON, KY. Roman Catholic Diocese Msgr. C. A. Toyle, dir., Covington, Ky. Bids Mar. 21. CD 3/18.

▲ John Martin Co., Inc., 610 W. Manning St., Chattanooga, Tenn., CA. $1,992,882, Howard HIGH SCHOOL, CHATTANOOGA, TENN. City, City Hall, Chattanooga, Tenn. Bids Mar. 25. CD 4/10, under LB.

Daugherty & Waters, Mercantile Bldg., Knoxville, Tenn., LB $548,390. Gibbs High and Elementary SCHOOL, KNOXVILLE, TENN. Knox Co. Bd. Educ., Court House, Knoxville, Tenn. Bids Apr. 2. CD 3/13.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

April 22 Indiana, Ohio April 23 Michigan

STREETS AND ROADS

April 22 Ohio

BIDS ASKED—BUILDINGS

Ind., East Chicago—SERVICE, etc.—B.A. 4/22—Steel Transportation Co., 3201 Callahan St., service bldg. warehouse and office, $500,000. Leo Besozzi, 5217 Hohman St., Hammond, engr. CD 9/27.

▲ Mich., Birmingham—CHURCH—B.A. 4/22—First Presbyterian Parish, 388 N. Woodward St., 1 story,

DIFFICULT FOUNDATION WORK

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bsmnt., concrete, stone church group, incl. school, $1,000,000, Harold H. Fisher & Assoc., 1605 Industrial Bank Bldg., Detroit, archts. CD 4/4.

▲ **Ill., Canton**—SCHOOL—B.A. 4/23—School Dist. 66, Canton, 2 story, concrete, steel high school, $1,200,000. Atkins, Barrow & Laswith, 102 Main St., Urbana, archts. CD 8/17/50

Mich., Royal Oak—SCHOOL—B.A. 4/23—City, Bd. Educ., 2 story, bsmnt., brick, steel school, 11 Mile Rd. and Campbell St., $350,000. Plans deposit $25. Bids 3/5 rejected, O'Dell Hewlett & Luckenbach, 2300 Dime Bldg., Detroit, archts. CD 2/27.

Mich., Battle Creek—HOSPITAL—B.A. 4/25—Bd. Trustees Arthur S. Kimball Sanatorium, Battle Creek, 2 story, brick, steel hospital addn., Arthur S. Kimball Sanatorium, $300,000. Plans deposit $20 refundable, Lewis J. Sarvis, 258 Champiton St., archt.

Ind., Evansville—SCHOOL—B.A. 4/28—Bd. School Trustees, 200 N.W. 7 St., 2 story, brick stone Emma Roach School addns., alterations, $550,000. Plans deposit $25. Ralph Legeman, 10 Chestnut St., archt. CD 12/17

Mich., Detroit—CHURCH—Bids Asked—Chandler Park Baptist Church, Chandler Park Dr., 1 story, bsmnt., brick, steel, stone church, Chandler Park, $350,000, Les M. Butler, 19111 Asbury Park, archt. CD 4/17/51.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Ohio Homes, Inc.**, Union Trust Bldg., Cincinnati, O., Owner builds. $1,500,000. one hundred fifty 24x34 ft., 24x36 ft., 24x48 ft. prefabricated HOMES, Williams St. and Boyd Lane, MASON, O. National Homes Corp., Lafayette, Ind., archts. Stanley Markey, 137 W. Orchard St., Lebanon, O., engr.

▲ **Paul Cook**, 3520 Edwards Rd., Cincinnati, O., Owner Builds. $1,500,000. One hundred sixty 25x40 ft., 32x36 ft. brick, frame HOMES, Beachwood and Mt. Carmel Rds., MT. CARMEL, O. Pease Woodwork Co., Blue Rock Rd., Cincinnati, O., archts. Val B. Rule & Assoc., 647 Wallace St., Milford, O., engrs. Awarded Apr. 1.

Carl M. Geupel Constr. Co., 1919 N. Meridian St., Indianapolis, Ind., CA, approx. $500,000, 2 story, 88,000 sq. ft. brick, rein.-con. factory addn., INDIANAPOLIS, IND. The Bookwalter Co., Inc., 1520 N. Capitol St., Indianapolis, Ind. CD 12/6.

▲ **Clearing Industrial District**, 6455 S. Central St., Chicago, 32, Ill., CA, $2,100,000, 1 story, 310,000 sq. ft. WAREHOUSE, BEDFORD PARK, ILL. Clearing Industrial District, 38 S. Dearborn St., Chicago, 3, Ill.

Paschen Contractors, Inc., 2739 Elston St., Chicago, Ill., CA, $650,000, Jefferson Park SUB-STATION, 828 S. Jefferson St.; CA $200,000, Washington Park SUB-STATION, 6141 Prairie Ave., CHICAGO, ILL. Commonwealth Edison Co., 72 W. Adams St., Chicago, 3, Ill. Bids Mar. 28, awarded Apr. 1. CD 3/10

▲ **Sherry Richards Co.**, 201 N. Wells St., Chicago, Zone 1, and James McHugh Constr. Co., 6449 S. Park Ave., Chicago, LB, $6,495,000. 4 APARTMENTS, incl. 11 row houses, 648 units, Adams-Brooks Housing, 14 and Laflin Sts.;

Jacobson Bros. Co., 20 N. Wacker Dr., Chicago, 6, Ill., LB, $479,000, boiler house only for Adams Brooks Housing, CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago, 5, Ill. Bids Mar. 6. CD 2/6

▲ **Robin Constr. Co.**, 1333 N. Wells St., Chicago, 10, Ill., CA, $2,899,000, 49 row HOUSES, inc. 300 units, 44 St. and Cicero Ave., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago, 5, Ill. Bids Feb. 28, awarded Mar. 26. 3/21, under LB.

Wm. E. Schweitzer Co., 2207 Dodge Ave., Evanston, Ill., CA, $600,000, 60,000 sq. ft. FACTORY, FRANKLIN PARK, ILL. Bink Mfg. Co., 124 W. Carroll St., Chicago, Ill. Bids Mar. 4, awarded Mar. 31. CD 2/19

A. L. Jackson Co., 161 E. Erie St., Chicago, 11, Ill., CA, $614,447, Glenbard High SCHOOL addn., GLEN ELLYN, ILL. School Distr. 87, Glen Ellyn, Ill. Bids Mar. 10, awarded Mar. 24. CD 3/19, under LB.

Enger Bros., 4910 W. St. Paul St., Chicago, Ill., CA, $800,000, FACTORY, Lawrence and Harlem Sts., HARWOOD HEIGHTS, ILL. Magnaflux Corp., 5900 Northwest Blvd., Chicago, Ill. Bids July 20, awarded Apr. 1.

E. H. Marhofer Sr. Co., 520 N. La Salle St., Chicago, 10, Ill., CA, $350,000. Boys DORMITORIES, PALOS HEIGHTS, Ill., St. Coletta Parish. Wolf Rd. and 123 Sts., Palos Heights, Ill. Bids Jan. 30, awarded Mar. 25. CD 1/23

Arnold Lies Co., 1515 New York Ave., Aurora, Ill., LB $800,000, 1 story, bsmnt., Junior High SCHOOL, VILLA PARK, ILL. School District 45, 318 S. Michigan Ave., Villa Park, Ill. Bids Mar. 20. CD 3/4

Palmer-Smith Co., 415 Brainard St., Detroit, Mich. CA $300,000. 2 story, brick, steel Daly Elementary SCHOOL addn., INKSTER, MICH. Dearborn School Dist. No. 8, Inkster, Mich. Bids Feb. 4. CD 1/24

Strom & Strom, Inc., 1770 Sixth St., Muskegon, Mich. CA $375,000, 2 story, bsmnt., brick, steel, concrete SCHOOL, OSTEGO, MICH. Bd. Educ., Ostego, Mich. CD 12/6.

Proksch Constr. Co., Iron Mountain, Mich. CA $400,000. 2 story, bsmnt., brick, steel, concrete TELEPHONE BLDG., SAULT STE MARIE, MICH. Michigan Bell Telephone Co., 1365 Cass Ave., Detroit, Mich. Bids Mar. 18. CD 3/7.

▲ **Barton-Marlow Co.**, 2631 Woodward St., Detroit, Mich. CA $2,900,000. 18 rein.-con. addnl. test cells for jet PLANT, UTICA, MICH. Packard Motor Car Co., 1580 E. Grand Blvd., Detroit, Mich. CD 3/13/51.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

April 22, Iowa

STREETS AND ROADS

April 22, Iowa

BIDS ASKED—BUILDINGS

Tex., Jacksonville—HOSPITAL WING—B.A. 4/22—Nan Travis Memorial Hospital, Jacksonville, 3 story, 44x128 ft., 60-bed concrete framee, hospital wing, some alterations to existing hospital. $500,000. Plans deposit $15. Milton McGinty, 2425 Ralph St., Houston, archt. R. L. Jenkins, 4316 Blossom St. and Walter P. Moore, 4605 Montrose St., Houston, engrs. CD 10/26.

Tex., College Station—PHYSICAL EDUCATION—B.A. 4/29—A & M College of Texas, College Station, 3 story, 60,800 to 98,000 sq. ft., steel, concrete frame, masonry Physical Education. $684,000. Plans deposit $75. Bartlett Cocke, 3501 Broadway, San Antonio, archt. W. E. Simpson Co., 945 Milam Bldg., San Antonio, and Halsey & Royer, Transit Tower Bldg., San Antonio, engrs. CD 4/7, under LB.

▲ **Wyo., Casper** — SCHOOLS—B.A. 4/30—Natrona County School Dist. 2, and Natrona Co. High School District, Casper, Junior High School, $1,500,000; elementary school, $300,000. L. L. Krusmark, 722 S. Center St., archt. CD 63/49.

Minn., Winona—PHYSICAL EDUCATION—B.A. 5/1—State, Dpt. Administration, P. T. Peterson, dir. Purchases, 19 State Capitol, St. Paul, physical education bldg., State Teachers College, $600,000. Plans deposit $50. Boyum, Schubert & Sorenson, Winona, archts. CD 6/30/49.

▲† **Colo., Boulder**—LABORATORIES—B.A. 5/15— General Services Admin., Pub. Bldgs. Service, General Service Bldg., Wash., D. C., constr. Boulder Laboratories (except elevators), National Bureau of Standards, State Hy. 170. Plans deposit $65. CD 3/27.

▲ **Tex., Galveston**—HOSPITAL—B.A. 5/15—University of Texas, c/o Bd. Regents, 205 Main Bldg., Austin. The Rose and Henry Ziegler Hospital. $2,000,000. Plans deposit $40. Kenneth Frangheim, 2402 Crawford St., Houston, archt. CD 2/7.

Tex., Houston — WAREHOUSE — Bids Asked — Coffield Warehouse Co., Japhet St., warehouse, $450,000. CD 4/4.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dst. 1246 University Ave., St. Paul.

Thornton Bros. Co., 1343 Dayton Ave., St. Paul, Minn. LB $598,344. base c. conc. pavement, plant-mixed bit. surf 9.2 mi., in Austin, etc., Mower Co.; cancelled bids to have been opened Mar. 28, grading 1.3 mi. in Rochester, Olmsted Co., Bids Mar. 28. CD 3/13.

South Western Gear Works, 117 N. Palmer St., Houston, Tex., LB $467,290, spillway tainter gates for Fort Randall Dam and Reservoir, Inv. 52-68, near Lake Andes, SOUTH DAKOTA, U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Apr. 2.

† **Atlantic, Gulf & Pacific Co.**, Citizens State Bank Bldg., Houston, Tex., CA, $883,077, est. $850,000, dredging Houston Ship Channel, Shell Refinery to Hunting Bayou, Inv. No. CIVENG 41-243-52-65, Harris Co., TEXAS. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Mar. 27. CD 4/3, under LB.

▲ **Anderson Bros. Corp.**, 707 N. Drennan St., Houston, Tex., CA. Approx. $2,425,000. 60 mi. 26 in. welded joint crude oil pipe line from Colorado City to near Abilene, TEXAS. West Texas Gulf Pipe Line Co., Gulf Bldg., Houston, Tex.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **H. B. Nicholson, James L. Ferry & N. P. Van Valkenburgh**, 880 N. Colorado St., Pasadena, Calif., CA, $1,960,000. addnl. STORAGE facilities, 19 to 34 inert STORAGE HOUSES, etc., Naval Ammunition Depot, NOY 70829, McALESTER, OKLA. Dpt. Navy, Eighth Naval Dist., New Orleans, La. Bids Feb. 21. CD 3/7, under LB.

▲ **Oklahoma Gas & Electric Co.**, 321 N. Harvey St., Oklahoma City, Okla., Owner Builds. $8,500,000. 100,000-kw steam POWER PLANT, near SULPHUR, OKLA., Pioneer Service & Engineering Co., 231 S. LaSalle St., Chicago, Ill., engrs. CD 2/14/51.

▲ **J. W. Bateson Constr. Co.**, Irwin-Keasler Bldg., Dallas, Tex., LB $9,122,000, est. $7,000,000. general contract and mechanical work 550-bed masonry type city-county HOSPITAL and CLINIC, DALLAS, TEX., City, City Hall, Main and Harwood Sts., and Dallas Co., Court House, Dallas, Tex. Bids Apr. 3. CD 2/27.

McCann Constr. Co., 1813 E. Lancaster St., Fort Worth, Tex., LB $714,784. RELIGION Bldgs. at TCU, FORT WORTH, TEX. Texas Christian University, c/o Dr. M. E. Sadler, pres., TCU Campus, Fort Worth, Tex. Bids Apr. 2. CD 3/24.

▲ **F. T. Thayer, Jr., Box 186, Garland, Tex., CA.** Approx. $1,000,000. 1, 2, and 3 story 102,000 sq. ft. concrete frame, paint mfg. PLANT, air-conditioning, GARLAND, TEX. DeSoto Paint & Varnish Co., 752 S. Somerville St., Memphis, Tenn. Frank T. Tobey, Falls Bldg., Memphis, Tenn., engr.

▲ **Hub Hill & Assoc.**, Mercantile Securities Bldg., Dallas, Tex., CA. Approx. $3,500,000, construct, manage, finance, 340 family type brick veneer HOUSING units, concrete slab fdn., at Fort Sam Houston Village on Military Hy. in Dodd Field area, SAN ANTONIO, TEX. U. S. Govt., c/o Col. Eustic L. Roland Deputy Post Commander, Fort Sam Houston, via San Antonio, Tex.

Mead & Mount Constr. Co., Railway Exchange Bldg., Denver, Colo., LB, $707,000, general contract 2 story 425 ft. east and west by 272 ft. north and south South Side Junior High SCHOOL, PUEBLO, COLO. School Dist. 60. 1110 Colorado Ave., Pueblo, Colo. Bids Mar. 26. CD 2/8.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Calif., Los Angeles**—B.A. 4/30—Los Angeles County Sanitation Dist. 2, 2020 Beverly Blvd., Joint Outfall Sewer "D" Unit 2, Section 3, Gardena and Torrance, $500,000; Joint Outfall Sewer "D" Unit 2, Sect. 2, Gardena and Torrance, $1,000,000. Extended date CD 4/8

BIDS ASKED—BUILDINGS

Calif., Martinez—HOSPITAL—B.A. 5/6—Contra Costa Co., Hall of Records, hospital facilities at Contra Costa County Hospital, $800,000. Masten & Hurd, 526 Powell St., San Francisco, archts. CD 7/17

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **UTAH**—State Road Comn., State Capitol, Salt Lake City.

A. O. Thorn Constr. Co., Springville, Utah, CA, $202,002, est. $215,651, 2½ in. plant mixed bit. 5.355 mi. roadway between Provo and Vineyard, Utah Co.;

Floyd S. Whiting, Murray, Utah, CA $205,119, est. $209,119, 2½ in. road mixed bit., 3.322 mi. roadway from Kanab N. to Utah line, 9 mi. SE, Proj. No. 105 (7), Kane Co.; CA $69,836, est. $72,053, construct 3 in. road mixed bit. 0.826 mi. roadway near Glendale on U. S. Hy. No. 89, Kane Co.;

Gibbons & Reed Co., 269 W. 3rd South St., Salt Lake City, Utah, CA, $577,269, est. $548,526, construct 4.948 mi. 3 in. plant mixed bit. roadway incl. widening of bridge U. S. Hy. No. 91 between Brigham City and Mantua, Box Elder Co. Grand total $1,054,226. Bids Apr. 1. CD 3/24.

▲† **Guy F. Atkinson Co.**, 10 W Orange Ave., South San Francisco, Calif., LB, $5,772,959, Folsom Power Plant and appurtenant works at Folsom Dam Site, Spec. DS 3662, CALIFORNIA, Bureau Reclamation, Dpt. Interior, Sacramento, Calif. Bids Apr. 2. CD 2/11

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento.

Piombo Constr. Co., 1751 Turk St., San Francisco, Calif. LB, $1,674,377, construct 2.6 mi road between north city limits and 1 mi. south of south city limits, San Mateo Co. Bids Mar 26, Awarded Apr. 2. CD 4/2, under LB

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles.

Bressi & Bevanda Constructors, Inc., Box 439, North Hollywood, Calif., LB, $2,240,467, construct 4.4 mi. road between 2.2 mi. south of Carlsbad and Buena Vista Creek, San Diego Co. Bids Apr. 3. CD 3/12

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento.

Clyde W. Wood & Sons, Inc., P. O. Box 620, North Hollywood, Calif., CA, $1,200,700, construct 3.2 mi. road between Gaviota and Gaviota Gorge near Gaviota, Santa Barbara Co. Bids Mar. 19, awarded Apr. 2. CD 3/25 under LB.

CALIFORNIA—State Div. Hys., 120 S Spring St., Los Angeles.

Webb & White, 7220½ Melrose Ave., Los Angeles, Calif., CA, $764,976, grading, etc. 1.2 mi Santa Ana Freeway between 25 mi. west of Los Angeles St. and Orangewood Ave., Orange Co. Bids Mar. 20, awarded Apr. 4. CD 2/31, under LB

▲ **Steve P. Rados, Inc.**, 2975 San Fernando Rd., Los Angeles, Calif., LB, $2,177,211, 29,326 ft. 60 in. rein.-con. pipe, Garvey-Ascot Crosstown Feeder, Alhambra, LOS ANGELES, CALIF. Metropolitan Water Dist. of Southern California, 306 W. 3 St., Los Angeles, Calif. Bids Apr. 2. CD 3/24

† **Gould & Cross**, 636 Quay St., Wilmington, Calif., LB, $426,130, two 100-man barracks and boiler plant at Marine Air Corps Facility, Spec. 32626, SANTA ANA, CALIF., Seventh Naval Dist., San Diego, Calif. Bids Apr. 3. CD 3/6

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Nevos Corp.**, 12235 Ventura Blvd., Los Angeles, Calif., Owner Builds. $3,250,000. 390 DWELLINGS in Sunnyside Tract, LAS VEGAS, NEV. Walter Warner, 12235 Ventura Blvd., Los Angeles, Calif., archt.

▲ **W. Meyers & Son**, Hyde Bldg., Spokane, Wash., LB, $910,000 general contract;

Warren, Little & Lund, W 609 2 Sa., Spokane, Wash., LB, $301,376, mechanical work HIGH SCHOOL, PASCO, WASH. School Bd., Pasco, Wash. Bids Apr. 4. CD 3/18

Modern Home Builders, 3849 34 Ave. W., Seattle, Wash., Day Labor, $700,000, 70 HOUSES, WENATCHEE, WASH. CD 12/4

F. R. McAbee, 921 Elliot Ave., Seattle, Wash., Day Labor, $750,000, 74 HOUSES, WENATCHEE, WASH. CD 3/3

Austin Co., 618 Grand Ave., Oakland, Calif., CA, $500,000, design and construct, OFFICE in Linfield Oaks Subdivision, MENLO PARK, CALIF. American Insurance Co., 256 Montgomery St., San Francisco, Calif.

▲† **M & K Corp.**, Financial Center Bldg., San Francisco, Calif., LB, Item 1, $2,526,000; Item 2, $2,366,000; Item 3, $2,214,000; Item 4, $2,063,000, Item 5 $1,888,000, Barracks, mess hall, remodel boiler house at U. S. Naval Air Station, NOY 2885, Spec. 30509, MOFFETT FIELD, CALIF. Twelfth Naval Dist., San Bruno, Calif. Bids Apr. 2. CD 3/11

R. G. Trigg, 5325 Atlantic Blvd., Long Beach Calif., CA, $863,600, 127 frame, stucco DWELLINGS, Dumond, Lefloss and Studebaker Sts., NORWALK, CALIF. Therson Homes, Inc., 5325 Atlantic Ave., Long Beach, Calif.

Lewis C. Nelson & Sons, 3015 N. McCall, Selma, Calif., LB $396,505, General Grant and Washington Elementary SCHOOLS, REEDLEY, CALIF. Reedley Elementary School Dist., Reedley, Calif. Swartz & Hybert Rowell Bldv., Fresno, Calif., archts.

Hedahl-Martin Co., 501 Standish St., Redwood City, Calif., CA, $502,903, Base Bids and Alternates, HEALAH and WELFARE CENTER BLDG., at San Mateo Community Hospital, SAN MATEO, CALIF. San Mateo Co. Court House, Redwood City, Calif. Bids Mar 26, awarded Apr. 3. CD 2/28.

Midstate Constr. Co., 347 Clay St., San Francisco, Calif., CA, $433,331, Capuchino High SCHOOL Unit 3 San Bruno, SAN MATEO, CALIF. San Mateo Union High School. Bellevue Ave. and Delaware St., San Mateo, Calif. Awarded Apr. 3. CD 6/2/48

Shepard & Green, 309 American Trust Bldg., Stockton, Calif., LB $530,368, Base A; $319,707 Base B, Warehouse Units 5, 6, STOCKTON, CALIF. Port Comn. of Stockton, 123 N. El Dorado St., Stockton, Calif. Bids Mar. 31. CD 3/20

▲ **T. H. Hazzard**, 10311 S. Carley Dr., Whittier, Calif., CA, $1,000,000, 100 frame, stucco DWELLINGS in Tract 14191, WHITTIER, CALIF. Premier Bldg. & Loan Assn., c/o Palmer W. Power, archt. Ocean Center Bldg., Long Beach, Calif

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **ALASKA**—S.A. 3/30—Alaska Road Comn., Federal and Territorial Bldg., Juneau.

Fairbanks—5-span 398 ft. steel deck girder bridge over Chena River, $500,000. Three 44 ft. I-beam spans over Noyes slough. Plans deposit $10 each. W. A. Niemi, c/o owner, ch. engr.

BIDS ASKED—BUILDINGS

† **Alaska, Kodiak**—SCHOOL—B.A. 5/14—Alaska P. Wks., Dpt. Interior, Juneau, 1 story, rein.-con., frame school, Aaa 50-A-96. $465,000. Plans deposit $25. W. A. Johnson & Assoc., 1st. Natl. Bank Bldg., Everett, Wash., archts. CD 9/30/49.

† **Alaska, Sitka**—SCHOOL—B.A. 5/14—Alaska P. Wks., Dpt. Interior, Juneau, 1 story, rein.-con., frame school, Aaa 50-A-51. $500,000. Plans deposit $25. W. A. Johnson & Assoc., 1st. Natl. Bank Bldg., Everett, Wash., archts. CD 2/3/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Wiggins Constr. Co.**, Anchorage, Alaska, LB $444,423, est. $588,840, 26 mi. 115-kv transmission line from Eklutna hydro-plant to Anchorage. Spec. DC-3672, ALASKA. Bureau Reclamation, Dpt. Interior, Palmer, Alaska. Bids Apr. 1. CD 2/27.

U. S. POSSESSIONS

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Tecon Corp.**, 1201 Main St., Dallas, Tex., CA $2,699,527, parking stubs, connecting taxiways and strengthening pavement, Ramey Air Force Base, Serial No. ENG 08-123-52-108, AGUADILLA, PUERTO RICO. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Mar. 19. CD 3/26, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

April 23, Manitoba—May 13, Nova Scotia

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Mannix Ltd., and **Wilson & Crowe, Inc.**, 736 Granville St., Vancouver, B. C., CA, $824,450, clearing 550 acres in reservoir area of Cleveland Dam, North Vancouver, VANCOUVER, B. C. Greater Vancouver Water Dist., 500 Beatty St., Vancouver, B. C. Awarded Apr. 2. CD 3/10, under LB.

F. Hankin & Co. Ltd., 2032 Union Ave., Montreal, Que., CA, $687,100, incinerator, Decarie Blvd.; CA, $695,000, incinerator, Boyce St., MONTREAL, QUE. City, City Hall, Montreal, Que. H. Gibeau, City Hall, Montreal, Que., city engr. Bids Mar. 29. CD 1/25.

▲ **Imperial Pipe Line Co. Ltd.**, 315 Alexandra Bldg., Edmonton, Alta., Owner Builds, $5,500,000. 100 mi. loop pipe line from Regina, Sask. to Gretna Man., SASKATCHEWAN and MANITOBA.

▲ **Poole Constr. Co., Ltd.**, 7 Hamilton St., Regina, Sask., CA, $1,014,749, filtration plant; CA, $169,266, 8,000 ft. steel pipe through Moose Jaw Creek Valley;

Concrete Products Ltd., Regina, Sask., CA, $721,434, concrete pipe from filtration plant for 2 mi. north of Dewdney St.;

Pigott Constr. Co. Ltd., 401 13 St. E., Prince Albert, Sask., CA, $62,807, steel, concrete intake pipe from lake to filtration plant, REGINA, SASK. Municipality, Regina, Sask. Grand total, $1,968,256. Bids Mar. 17. CD 2/28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Richard & B. A. Ryan Ltd.**, 78 Logan Ave., Toronto, Ont., CA, $3,080,000, four WAREHOUSES at military ordnance depot, COBOURG, ONT. Defence Construction (1951) Ltd., 441 Queens Quay W., Toronto, Ont. Bids Feb. 12, awarded Apr. 3. CD 1/28.

Richard & B. A. Ryan Ltd., 78 Logan Ave., Toronto, Ont., CA, $400,000, Central HEATING PLANT at Ordnance Depot site, east of C.G.E. plant, COBOURG, ONT. Defence Constr. Ltd., 441 Queen's Quay W., Toronto, 28, Ont. R. D. Schoales, 250 Catheart St., London, Ont., archt. R. P. Opie, c/o owner, engr.

Hamilton Construction Co., 1068½ Barton St. E., Hamilton, Ont., Owner Builds, $800,000, 80 HOUSES, HAMILTON, ONT.

▲ **Tatti Constr. Co. Ltd.**, 73 King St. W., Hamilton, Ont., Owner Builds, $1,050,000, 15 buildings, concrete, wood frame APARTMENT bldgs., Forrester Park Survey, OAKVILLE, ONT. M. Bach, 152 Bloor St. W., Toronto, Ont., archt.

▲ **George Hardy, Ltd.**, 163 Wicksteed Ave., Toronto, Ont., CA, $1,500,000, 5 story, 2 bsmnts., brick, stone, rein.-con. MEDICAL RESEARCH BLDG., TORONTO, ONT. University of Toronto, Simcoe Hall, Toronto, Ont. Bids Mar. 24, awarded Apr. 5. CD 3/14.

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NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Mass., Provincetown—BATHHOUSE—B.A. 4/22—State, Dpt. P. Wks., 100 Nashua St., Boston, bathhouse, NPA 3-19-52. $150,000. Bids 11/27 rejected, Mario V. Caputo, 6 Beacon St., Boston, Mgmt. CD 12/12, under LB.

▲ **Mass., Boston**—B.A. 5/1—State, Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Contr. 190, sewer tunnel 33¼ mi. Deer Island to Chelsea Creek, North Metropolitan Relief Tunnel, Boston Harbor, Approx. $6,000,000. CD 1/15.

BIDS ASKED—BUILDINGS

▲ **Mass., Lynnfield**—SCHOOL—B.A. 4/24—Town, School Bldg. Comn., Town Hall Junior High School Main St. $1,000,000. Howard L. Rich & Herman F. Tucker, 45 Newbury St., Boston, archts. CD 8/21/51.

† **R. I., Quonset Point**—BUILDING REPAIRS—B.A. 4/24—Pub. Wks. Office, Bldg. 438, Quonset Point, repairing 16 bldgs., Defence Housing Area, Spec. 34254. Plans deposit $10.

▲ **N. H., Dover**—HOUSING—B.A. 5/6—Dover Housing Auth., Municipal Bldg., Dover, Proj. N.H. 3-1, housing, Tolland and Whittier Sts. $1,375,000. Plans deposit $75. Edward J. Shields, 1245 Hancock St., Quincy, Mass., archt. Willis E. Littlefield, 339 Central Ave., assoc. archt. CD 1/3.

▲ **Conn., Hartford**—HOTEL—B.A. About 5/15—Hotels Statler, Inc., c/o Robert Sosnick, treas. and vice pres., 7 Ave. and 33 St., New York, N. Y., (selected list of bidders), hotel, Pearl and Ford Sts. $5,000,000. William B. Tabby, c/o owner, engr. CD 8/18/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Beacon Constr. Co.**, 102 Hano St., Allston, Mass. CA $1,447,000. 275 HOUSING units, Proj. ME 1-D1, Presque Isle Air Force Base, PRESQUE ISLE, ME. Dpt. Air Force, Presque Isle, Me. Bids Apr. 2. CD 3/14.

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord.

Wilfred Gilbert, 69 Highland St., Laconia, N. H., LB $138,960, surf. treated grav. 1.704 mi., N.H. 10, towns of Lyme and Orford. Bids Apr. 3. CD 3/26.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston.

LaRose Constr. Co., West Brookfield, Mass. LB (A) $82,382 (B) $86,380, est. $80,000. bridge, approaches, North Spencer Rd., Spencer. Bids Apr. 1. CD 3/19.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston.

Bethlehem Steel Co., 75 Federal St., Boston, Mass. LB $1,857,710, est. $1,500,000. Contr. C-2C, steel superstructure for elevated hy., portion J. F. Fitzgerald Expressway and Central Artery, Boston.

M. DeMatteo Constr. Co., 200 Hancock St., Quincy, Mass. LB $2,117,612, est. $2,100,000. U-331 (C), Contr. C state hy., Manchester and Wenham. Bids Apr. 1. CD 2/20 and 3/12.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston.

John P. Condon Corp., 105 Corlidge Hill Rd., Watertown, Mass. LB $88,597, hy. work, Boston, (West Roxbury). Bids Apr. 1. CD 3/19.

Granger Contg. Co., 306 Main St., Worcester, Mass. LB $747,870, est. $400,000, administration bldg., control tower bldg., WORCESTER, MASS. City, Municipal Airport Comn., Worcester, Mass. Bids Apr. 1. CD 3/10.

▲ **Associated Constr. Co.**, 1010 Wethersfield Ave., Hartford, Conn., LB $1,374,800, Contr. E51.81-52 101, refuse incinerator North Meadows near Connecticut River, HARTFORD, CONN. City Purch. & Contg. Agt., 550 Main St., Hartford, Conn. Bids Apr. 1. CD 3/24.

C. H. Nickerson & Co., Box 486, Torrington, Conn., LS $221,000, Contr. E, sewage treatment plant.

P. DiMaio & Sons, 73 Piney St., Rochester, Mass. LB $68,183 Contr. D, sanitary sewer, appurtenances, Main St., WAREHAM, MASS. Dpt. P. Wks., 27 Elm St., Winsted, Conn. CD 8/22/49.

BUILDINGS

LOW BIDS AND CONTRACTS

Swanburg Constr. Corp., 61 Amherst St., Manchester, N. H. LB $360,000, est. $350,000. STORE and OFFICE, remodel, alterations, MANCHESTER N. H. Varick Building, Elm St., Manchester, N. H. Carl E. Peterson, 1008 Elm St., Manchester, N. H., archt.

▲ **J. A. Sinigarella Co.**, 15 Bay St., Dorchester, Mass. CA $1,184,000. Proj. P-HB Contr. 2, SERVICE BLDG., Morton St., Forest Hills, BOSTON, MASS. State, Dpt. P. Health, State House, Boston, Mass. CD 3/11, under LB.

Rich Bros. Constr. Co., 410 Park Square Bldg., Boston, Mass. CA $358,174, CHURCH and RECTORY, West and Torey Sts., BROCKTON, MASS. Our Lady of Lourdes Parish, c/o Chancery Office, Richard J. Cushing DD LLD, Lake St., Brighton, Mass. CD 2/20, under LB.

▲ **J. Slotnick Co.**, 99 Chauncey St., Boston, Mass. CA $1,549,000. 162 HOUSING, Proj. PHA 1-2 Chelmsford St., LOWELL, MASS. Lowell Housing Auth., 18 Market St., Lowell, Mass. CD 4/4, under LB.

▲ **Maloney & Rubien**, 66 Wickendon St., Providence, R. I. CA. $1,236,232, HIGH SCHOOL, Hazard Property, SOUTH KINGSTON, R. I. Town, School Bldg. Comn., South Kingston, R. I. Bids Mar. 20. CD 3/28, under LB.

▲ **Bernard Chizner Assoc.**, c/o Kane & Fairchild, archts., 734 Asylum Ave., Hartford, Conn. Owner Builds, $1,000,000, APARTMENT, between Main and High Sts., EAST HARTFORD, CONN. CD 2/7.

▲ **B. Perini & Sons, Inc.**, 73 Montwait Ave., Framingham, Mass., CA, $3,337,000, Contr. 6-1 HOUSING, Berkeley Heights, WATERBURY, CONN. City Housing Auth., Waterbury, Conn. Bids Mar. 11, awarded Mar. 27. CD 3/18, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Md., Carderock**—TEST POND—B.A. 4/23—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., improvs. test pond at David W. Taylor Model Basin, NOY 71756, Spec. 33159. Plans deposit $10. CD 7/26/48.

† **Md., Edgewood**—UNDERGROUND MAGAZINES—B.A. 4/30—U. S. Eng., 24 St. and Maryland Ave., P.O. Box 1715, Baltimore, Zone 3, underground magazines, Eastern Chemical Depot, Army Chemical Center, ENG 18-020-52-41. CD 3/25.

BIDS ASKED—BUILDINGS

† **Md., Suitland**—SHIPPING AND RECEIVING—B.A. 4/22—General Services Admin., Public Bldgs. Service, Wash., D. C., shipping and receiving bldg., Navy Hydrographic Office, Proj. 18-074. Plans deposit $5.

N. Y., Flushing—COLLEGE—B.A. 4/22—Bd. Higher Education Queens College Business Office, 65-30 Kissena Blvd., Zone 67, Contract 1, general construction; Contract 2 plumbing; Contract 3, electrical work for misc. alterations in Buildings D and E at Queens College. Plans deposit $15.

▲ **Pa., Phila.**—HOSPITAL, etc.—B.A. 5/14—General State Auth., 18 and Herr Sts., Harrisburg, (1) main hospital bldg. and utility tunnel for Eastern Pennsylvania Psychiatric Institute; (2) addn. of doctors' and nurses' quarters with connecting corridor to main hospital, $7,000,000. Plans deposit $100. A. F. Jones, c/o owner, ch. engr. Harbeson, Hough, Livingston & Larson and Harry Sternfeld, 407 Architects Bldg., Phila., Pa., archts. CD 12/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

George M. Brewster & Son, 275 Fort Lee Rd., Bogota, N. J., CA, $225,064, constr. proposed new approach spans on Midtown Bridge, HACKENSACK and BOGOTA, N. J. Chairman P. Wks. Committee and Clerk Bd. Freeholders, Bergen Co., Hackensack, N. J. Bids Mar. 18. C 2/19.

PENNSYLVANIA—State Hy. Dpt., North Office Bldg., Harrisburg.

Hempt Bros., R. D. 1, Camp Hill, Pa., LB $563,800, c. conc. 17,995 ft. 3-lane highway, T. R. U. S. 15, Dillsburg By-pass, York Co.

Beaver Asphalt Paving & Constr. Co., Box 104, New Brighton, Pa., LB $129,249, widn. and overlay of 5,433 ft. existing pavement with crushed aggregate base and bit. surf., T. R. 40, Washington Co.

Black Top Paving Co., Oakland Ave., Washington, Pa., LB $130,988, widn. 10,194 ft. pavement with crushed aggregate base and bit. surf., T. R. 40, Washington Co. Bids Apr. 4. CD 3/13.

▲† **Robert E. Lamb**, 3429 W. Indiana Ave., Phila., Pa., LB. $1,196,000, water treatment plant, filter bldg., wells, tanks, transmission mains, U. S. Naval Base, NOY 70138, Spec. 51272, PHILA., PA. P. Wks Office Bldg. No. 1, U. S. Naval Base, Phila., Pa. Bids Mar. 18. C 3/11.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore.

Comtee Sand & Gravel Corp., Laurel, Md. LB $638,765, widn., resurf., 6.055 mi. Rte. No. 1, CE 334-1-215, Cecil Co. Bids Apr. 1. CD 3/19.

Intercounty Constr. Corp., Hyattsville, Md., LB $289,810, White Clay Interceptor, Sect. C, New Castle, DEL. New Castle Co. Levy Court 11 and King Sts., Wilmington, Del.

Olivere Paving & Constr. Co., 10 W. 7 St., Wilmington, Del., LB, $88,048, paving Orange St. from Front to 10 Sts., WILMINGTON, DEL. City, City Hall, Wilmington, Del. CD 3/11.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Turner Constr. Co.**, 420 Lexington Ave., New York 17, N. Y., CA. Approx. $4,255,000, HOSPITAL, 76 Ave., south of Hewlett Ave., GLEN OAKS, N. Y. Long Island Jewish Hospital, c/o Louis Abramson, archts., 25 N. 45 St., New York 19, N. Y. CD 2/19.

Lakeview Home Constr. Co., Inc., Haddon Heights, N. J., Separate Contracts, $300,000; RESIDENTIAL DEVELOPMENT, Black Horse Pike, BELLMAWR, N. J.

New Jersey Bldg. Co., 24 and Marlton Pike, Camden, N. J. Separate Contracts, $778,650, RESIDENTIAL DEVELOPMENT, Landis Ave., 61 and 65 Sts., SEA ISLE CITY, N. J. Arthur B. Gill, 111 N. 4 St., Camden, N. J., archt.

Capitol Homes, Inc., 1609 Western Savings Fund Bldg. Phila., Pa. Separate Contracts, $450,000 RESIDENTIAL DEVELOPMENT, Hilltonia Section, Cornwall and Stuyvesant Sts., TRENTON, N. J. Dante D'Anastasio, 1815 Federal St., Camden, N. J., archt.

Charles C. Blauth, Pleasant Valley Rd., Trenton, N. J., CA, $86,000, 2 story, 66x90 ft., cinder block, brick mfg. PLANT addn., TRENTON, N. J. Lawrence Hose Co., Brunswick Pike, Trenton, N. J.

▲ **Clower Constr. Co.**, c/o J. T. Jackson Co., Roosevelt Blvd. and Rising Sun Ave., Phila., Pa., Separate Contracts $1,200,000, RESIDENTIAL DEVELOPMENT, Bethlehem Pike, etc., AMBLER, PA.

▲† **Valley Forge Associates** (Turner Constr. Co., 1500 Walnut St., Phila., Pa., Irwin & Leighton, 1505 Race St., Phila., Pa. and Gilbert Associates, architects-engrs. 412 Washington St., Reading, Pa.) C-E conversion and rehabilitation PLANT of Birdsboro Steel Foundry & Machine Co., 1941 Furnace St., BIRDSBORO, PA. U. S. Eng., P. O. Box 8629, Phila. 1. Pa. Edwin Carman, Inc., 1643 Lee Rd., Cleveland, O., foundry layout specialists will act as consult. archts.

† **Dpt. Army**, Carlisle, Pa., rejected bids FAMILY QUARTERS Bldg No. 20, CARLISLE, PA. LB $620,760. CD 3/27, under LB.

Marianville Homes, 801 Lorraine Ave., Ardmore, Pa., Separate Contracts, $720,000, RESIDENTIAL DEVELOPMENT, Concord Rd., CHESTER, PA.

Whitehall Park Development Co., 1436 Creston St., Phila., Pa., Separate Contracts, $400,000, residential development, Whitehall Rd., JEFFERSONVILLE, PA.

Heywood Hall Constr. Co., 512 Swede St., Norristown, Pa., Separate Contracts, $750,000, 2 APARTMENT bldgs. 1800 block Pine St., 600 block of Hamilton St., NORRISTOWN, PA. Lewis J. Cowan, 1505 Pine St., Phila., Pa., archt.

Paoli Development Co., 120 W. Chester St., Paoli Pike Paoli, Pa., CA, $409,500, RESIDENTIAL DEVELOPMENT, Rt. 202 and Cedar Hollow Rd., PAOLI, PA.

Costello Bros., Albion and Stanfield Sts., Phila., Pa., Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT, Albion St., PHILA., PA. H. Stanley Atkinson, 10 S. 18 St., Phila., Pa. archt.

Finestone Bros., 5163 Westford Rd., Phila., Pa., Separate Contracts, $500,000, RESIDENTIAL DEVELOPMENT, Lawndale Ave., PHILA., PA. Lewis J. Cowan, 1505 Pine St., Phila., Pa., archt.

Gillespie Homes, Inc., 4634 N. 5 St., Phila., Pa., Separate Contracts, $559,300, RESIDENTIAL DEVELOPMENT, Maple Ave., PHILA., PA. I. W. Levin, 1531 Belmont Ave., Phila., Pa., archt.

Emanuel Korman, 1325 Walnut St., Phila. Pa., Separate Contracts, $650,000, RESIDENTIAL DEVELOPMENT, Hoffnagle St., PHILA., PA. Lewis J. Cowan, 1505 Pine St., Phila., Pa., archts.

J. Cutler & Sons, 1615 Chelten Ave., Phila., Pa., Separate Contracts, $304,000, RESIDENTIAL DEVELOPMENT, Bustleton Ave., PHILA., PA.

Wintz Bros., 1618 Sellers Sts., Phila., Pa., CA $83,000 1 story, brick, block, concrete, trucking TERMINAL and OFFICES, PHILA., PA. J. M. Weiss, c/o Joseph T. Varello, archt., 1411 Walnut St., Phila., Pa.

Jack S. Steele Co., 1300 W. Hunting Park Ave., Phila., Pa., CA, $150,000, 1 story, cinder block WAREHOUSE Bldg. 14, PHILA., PA. Lumber & Millwork Co., York Rd., above Butler St., Phila., Pa.

R. M. Shoemaker Co., 1619 Sansom St., Phila., Pa., CA, 1 story, 35,000 sq. ft., brick, steel INDUSTRIAL BLDG., PHILA., PA. France Packing Co., 6512 State Rd., Phila., Pa. Cronheim & Weger, 20 and Walnut Sts., Phila., Pa., engrs. and archts. CD 11/28.

Luria Eng. Co., 500 5 Ave., New York, N. Y., CA, $100,000, 1 story, 10,000 sq. ft., MAINTENANCE, PHILA., PA. Wilkening Mfg. Co., 2000 S. 71 St., Phila., Pa.

Robert E. Lamb & Son, 3429 W. Indiana Ave., Phila., Pa., CA, $90,000, 1 story, 70x200 ft., block, steel lumber STORAGE BLDG. addn., PHILA., PA. J. Gibson McIlvain Co., 58 St. and Woodland Ave., Phila., Pa.

▲ **Pennsylvania Builders, Inc.**, Gay and Anderson Sts., Phoenixville, Pa., Separate Contracts, $2,000,000, RESIDENTIAL DEVELOPMENT, Pennypack Gardens, PHOENIXVILLE, PA.

McCloskey & Co., 1620 W. Thompson St., Phila., 21, Pa., LB $888,000, general constr. HIGH SCHOOL on Plymouth-Whitemarsh Joint School Bd., PLYMOUTH MEETING, PA. Public School Building Auth., 201 S. 25 St., Harrisburg, Pa. Bids Apr. 3. CD 3/7.

Beyer Constr. Co., 26 Mohawk Ave., Warren, Pa., LB, $507,846, general contract, HIGH SCHOOL for Joint School District, Union City and Union Twp., UNION CITY, PA. State Public School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids Apr. 2. CD 3/5.

Wynnewood Co., 141 Garrett Rd., Upper Darby, Pa., Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT, Fariston Dr., etc., WYNNEWOOD, PA. Jack Swerman, 405 Market St., Chester, Pa., archts.

MacLeod Constr. Co., 619 S. Caton Ave., Baltimore, Md. CA $579,990. 1 story, brick, block, concrete, steel Mt. Wilmans Elementary SCHOOL, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. CD 4/1, under LB.

▲ **R. W. Seltzer**, Hale Ave., Forest Glen, Md., Owner Builds, $1,050,000, APARTMENT, Hale Pl. and Holman Ave., FOREST GLEN, MD. CD 11/1.

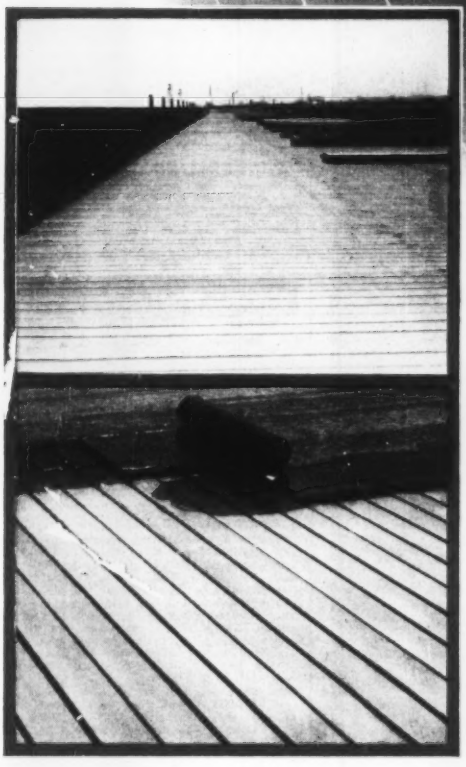
SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Va., Chincoteague**—OPEN STORAGE AREA—B.A. 4/22—Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, open storage

(Continued on page 114)

A roof that's supported by only *36 OUNCES OF STRUCTURAL STEEL* per square foot . . .



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With Jaeger's 600 ft. of 100 lb. air (which has made 500 ft. compressors obsolete) D. W. Winkelman Co. stepped up drilling speed 40% when shooting rock on the Pennsylvania Turnpike.
Model 125 runs 5 hp Ka-Mo
To cut pipe tunnel at Marion, Ohio, George J. Igel & Co. needed 110 cfm at 100 psi to run their Ka-Mo drill. A Jaeger Model 125 did the job easily after a 105 ft. unit tried and failed.
3 guns instead of 2 (50% more work)
With the Jaeger 75 (instead of an "old standard" 60) Surface Coverings Co., San Antonio, Tex., works 3 spray guns instead of 2. Each gun uses 25 cfm of air.

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THE JAEGER MACHINE COMPANY

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PUMPS • MIXERS • AGGREGATE SPREADERS • CONCRETE SPREADERS, FINISHERS

(Continued from page 112)

area at U. S. Naval Aviation Ordnance Test Station, NOY 71280. Spec. 32850. Plans deposit $10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Payne & Oliver Concrete Co., Inc., 901 Leesburg Pike, Falls Church, Va., C9, $102,237;

Nance & Vivadelli Constr. Co., 2420 Wilson Blvd., Arlington, Va., CA, $96,160, installing approx. 6 mi. concrete sewers in Bailey's Crossroads area, FAIRFAX, VA. Fairfax Co., Vepco Bldg., Fairfax, Va. Bids Mar. 6, awarded Apr. 2. CD 2/12, under LB.

† American Bridge Co., 71 Broadway, New York, N. Y., CA $639,535, aircraft hangar at Charleston Municipal Airport, No. 38-081-52-45, NORTH CHARLESTON, S. C. U. S. Eng., Custom House, Charleston, S. C. CD 4/3, under LB.

† American Bridge Co., 71 Broadway, New York, N. Y., CA $594,594, aircraft hangar at Shaw Air Force Base, 38-081-52-44, SUMTER, S. C. U. S. Eng., Custom House, Charleston, S. C. Bids Mar. 17. CD 4/3, under LB.

Joe Reinertson, 2027 N.W. 7 Ave., Miama, Fla., LB, $282,560, storm sewers and pumping station MIAMI, FLA. City, City Hall, Miami, Fla. Bids Apr. 2. CD 3/19.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Stone & Webster Eng. Corp., 3100 Benning Rd. N.E., Wash., D.C., CA $16,000,000, design and construct POWER PLANT addition of 80,000 KW units, ALEXANDRIA, Va. Potomac Electric Power Co., 10 and E Sts. N.W., Wash., D.C.

▲† Granis & Sloan, Thompson & Street & Co., R. H. Wattinger, Pineville Rd., Charlotte, N. C., LB, $1,676,600, BARRACKS, MESS HALL, ADMINISTRATION BLDG., GATE HOUSE and entrance facilities with site preparation, NOY 70664, ALBANY, GA. Dpt. Navy, Officer in Charge of Construction, Box 365 Naval Base, S. C. Bids Apr. 3. CD 3/18.

R. P. Farnsworth Co., Inc., P.O. Box 2029, Baton Rouge, La., CA $865,815, 190 prefabricated defense HOUSING units, Proj. LA 1-D-1, CAMP POLK, LA. Public Housing Auth., T & P Passenger Bldg., Fort Worth, Tex. CD 3/25, under LB.

Girdler Corp., 224 E. Broadway, Louisville, Ky. Owner Builds. $950,000. 140x188 ft., steel, frame processing PLANT, 5100 Crittenden Dr., LOUISVILLE, KY.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† O., Youngstown—RUNWAYS, etc.—B.A. 5/2—U. S. Eng., 237 Fourth Ave., Huntington, 18, W. Va., runway and taxiway numbering and marking at Youngstown Municipal Airport, Eng 46-022-52-108. Bid date changed. CD 3/28.

BIDS ASKED—BUILDINGS

▲ O., Marion—SCHOOL—B.A. 5/7—Dpt. P. Wks., Welfare Dept., 705 Ohio Depts. Bldg., Columbus. State Corrective School (Marion Training School) incl. 11 brick, concrete bldgs., heating plant, segregation bldg., observation and admission units, etc. $3,500,000. CD 7/24, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

A. Bentley & Sons Co., 201 Belmont St., Toledo, O. CA $598,000, general constr., HEALTH CENTER, Erie and Orange Sts., TOLEDO, O. City, Arnold V. Finch, city mgr., Safety Bldg., Toledo, O. Bids Mar. 18, awarded Apr. 2. CD 3/25, under LB.

Kucharo & Assocs., Inc., 225 Jewett Bldg., Des Mones, Ia., CA, $663,600, constr. 76 DWELLING UNITS and MAINTENANCE BLDG., on site of Proj. Ill. 35-1 and about 2½ mi. away 4 dwelling units on site of Proj. Ill. 35-2, DIXON, ILL. Lee County Housing Auth., Dixon, Ill. Bids Mar. 12, awarded Mar. 28. CD 3/18, under LB.

Barton-Malow Co., 2631 Woodward St., Detroit, Mich. CA $400,000. 1 story, brick, steel, concrete POWER PLANT, West Jefferson City, DETROIT, MICH. Hudson Motor Car Co., 12601 E. Jefferson St., Detroit, Mich. CD 3/13.

▲ Foxcroft Corp., M. F. Borgman, pres., Flint, Mich. Owner Builds. $1,000,000. one hundred and twenty-five 2 story, bsmnt., frame HOMES, FLINT, MICH. (CORRECTION—Cost). CD 4/3, under CA.

▲ Northwestern Development Co., Gerald R. Blanchard, Lansing, Mich. Owner Builds. $1,500,000. 165 HOUSES, 40 acre plot, Andrew Ave., US-16 and Delta River Rd., LANSING, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† Mo., St. Louis—RADAR SYSTEM—B.A. 4/23—Dpt. Commerce, Civil Aeronautics Admin., Procurement Branch, City Hall, Kansas City, precision approach radar sys., incl. frame bldg., cable, transformer, etc., Lambert-St. Louis Municipal Airport, Proposal SP 52-69. CD 2/3/47.

† Tex., Wichita Falls—POWER SUPPLY—B.A. 4/29—U. S. Eng., Box 61, Tulsa 2, Okla., power supply to

maintenance and operations facilities, Inv. ENG 34-066-52-57. $250,000. CD 2/12/51.

† Minn., Minneapolis—DORMITORIES—B.A. 5/1—U. S. Eng., 1709 Jackson St., Omaha, Neb., three airmen's dormitories, readiness bldg., Chamberlain Air Force Base, Inv. 52-74. CD 11/27.

BIDS ASKED—BUILDINGS

▲ Tex., Dallas—DWELLINGS—B.A. 4/25—Dallas Housing Auth., 2525 Lucas Dr., Tex. 9-11-G, 508 low cost dwelling units for total 72 bldgs. $3,000,000. Plans deposit $100. Associated West Dallas Architects, 2523 Lucas Dr., archts. CD 1/29.

▲ Tex., Dallas—HOUSING—B.A. 4/30—Dallas Housing Auth., 2525 Lucas Dr., Tex. 9-11-E, 510 low-cost housing units for total 70 bldgs. $3,100,000. Plans deposit $100. Associated West Dallas Architects, 2523 Lucas Dr., archts. CD 1/29.

▲ Tex., Corpus Christi—REFINERY—Bids Asked—Taylor Refining Co., c/o Petroleum Heat & Power Co., Poth Lane, refinery, benzine purification unit and platform catalytic. $3,000,000. CD 11/20.

SOON LETS CONTRACT—BUILDINGS

▲ Tex., Daingerfield — HOUSING — Federal Housing Admin., 1114 Commerce St., soon lets contract 400 defense housing units. $3,000,000. CD 3/31.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† S. J. Groves & Sons Co., 510 Wesley Temple Bldg., Minneapolis, Minn. LB $222,000. POL facilities, hydrant aircraft refueling at Wold-Chamberlain Air Force Base, Inv. 52-45. MINNEAPOLIS, MINN. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Apr. 1. CD 3/26.

† Brown & Lequil, Mankato, Minn., LB, $113,348, flood control works on Walling Minor Watershed, near Anthon, IOWA. Soil Conservation Service, 434 N. Plankinton Ave., Milwaukee, Wis. Bids Mar. 26. CD 3/17.

B-Line Constr. Co., First National Bank Bldg., Oklahoma City, Okla. CA $197,653. 53.5 mi. rural distr. lines, Boone and Callaway Counties, MISSOURI, Central Electric Power Co-operative, Jefferson City, Mo. Bids Mar. 18. CD 3/13.

† List & Clark Constr. Co., Railway Exchange Bldg., Kansas City, Mo., LB $860,163, earthwork, Stage I, Gavins Point Dam and Reservoir, near Yankton, Inv. 52-91, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Apr. 1. CD 3/10.

† Bauer-Smith Dredging Co. Inc., P.O. Box BB, Port Lavaca, Tex., CA, $110,562, dredging Port Aransas-Corpus Christi Waterway in Nueces City, TEXAS. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Feb. 26. CD 2/8.

Lone Star Producing Co., 1915 Wood St., Dallas, Tex. Purchase and Hire. $135,000. gathering gas lines, Runnels Co., TEXAS. CD 6/19/50.

Rusk-Palo la Electric Assn., Carthage, Tex. Purchase and Hire. $100,000. Reconstr. electric power lines, Hende son, TEXAS. CD 3/31.

† U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. cancelled bids to have been opened Apr. 2. 7 story base operati ns bldg. and telephone exchange bldg., ENG 41-243-52-74, AUSTIN, TEX. Est. $500,000. CD 3-17.

City, Brownwood, Tex. Own Forces. $135,000. some runway reconstr.; $75,000. refueling sys.; $90,000. shop (repair), BROWNWOOD, TEX. Grand total $300,000.

Magnolia Pipe Line Co., 1009 Fannin St., Houston, Tex. CA. Approx. $125,000. gas pipe line field collection sys., EDINBURG area, TEX. Magnolia Petroleum Co. & Associated Companies, 1009 Fannin St., Houston, Tex. CD 3/25.

Holland Page Co., 705 W 10 St., Austin, Tex., LB 49,860, est. $75,000. construct 12,925 ml. road and street improvs., clearing, grubbing excavation, concrete pipe drainage, hot mix, b. conc. etc. KOUNTZE TEX. Hardin County Road Dist. 1 Court House Kountze, Tex. Bids Mar. 27. CD 3/19.

Elliott Constr. Co., 317 Ave. P., Lubbock, Tex., LB $76,989. Asph. paving of leave outs on city streets, LUBBOCK. Bids Mar. 27.

Atlantic, Gulf & Pacific Co., Citizens State Bank Bldg., Houston, Tex., CA $350,000. dredging diversion channel on ship channel near PASADENA, TEX. Warren Petroleum Corp., City Natl. Bank Bldg., Houston, Tex. CD 12/31 under Industrial Buildings.

City, San Angelo, Tex. Owner Builds. $95,000. street improvs., asph. surf., SAN ANGELO, TEX. Koch & Fowler, 3900 Lemmon St., Dallas, Tex., engrs. CD 1/31/51.

City, San Angelo, Tex. Owner Builds. $85,000. Sanitary sewer lines, SAN ANGELO, TEX. Koch & Fowler, 3900 Lemmon St., Dallas, Tex., engrs. CD 1/31/51.

West Texas Utilities Co., Abilene, Tex. Purchase and Hire. $75,000. Completion of above-ground power pole line extensions, SAN ANGELO, TEX. CD 9/26.

West Texas Utilities Co., Abilene, Tex. Purchase and Hire. $85,000. Addnl. electric pole power line exten., SONORA, TEX. CD 9/26.

West Texas Telephone Co-operative, Stanton, Tex. Purchase and Hire. $150,000. Constr. portion of program for pole rural telephone lines, STANTON, TEX. CD 10/30, under Commercial Bldgs.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† McCarthy Brothers Constr. Co., 4903 Delmar Blvd., St. Louis 8, Mo. LB $2,169,485, est. $2,278,062. 1 story, 402x720 ft., steel, masonry main building, 121x126 ft. office wing, Adjutant General PUBLICATION CENTER, south of C. R. I. & Pac. R.R. west of Woodson Rd., Eng. 23-028-52-44, OVERLAND, (ST. LOUIS 14, P.O.), MO. U. S. Eng., 601 Davidson Bldg., Kansas City 6, Mo. Bids Apr. 1. CD 3/13.

N. V. Bussmann & Co., 7927 Clayton Rd., St. Louis 17, Mo. Owner Builds. $500,000. 24 ranch HOUSES, McKnight Rd. between York Woods and Whitehall subdivisions, ST. LOUIS COUNTY, MO.

S. Pattie Constr. Co., Inc., 1340 Admiral St., Kansas City, Mo. CA $934,000. POWER PLANT structures, Contr. K-19, KANSAS CITY, KAN. Bd. P. Utilities, Kansas City, Kan. CD 4/1, under LB.

▲ Paul Gross, Ulrich Bldg., Manhattan, Kan. Owner Builds. $1,500,000. HOUSING, MANHATTAN, KAN.

▲ Village Builders, Inc., Parsons, Kan. Owner Builds. $1,000,000. 100 RESIDENCES, PARSONS, KAN. Loth & Law, 404½ W. 75 St., Kansas City, Mo., archts.

C. J. Martin & Sons, Inc., 413 Chicon St., Austin, Tex. Purchase and Hire and Sub-contracts. $115,000. Industrial PLANT, AUSTIN, TEX. CD 1/23.

Technical Products Co., 602 West Ave., Austin, Tex., Purchase and Hire and Sub-contracts. $95,000. PLANT imprvs., remodeling, AUSTIN, TEX. CD 1/4.

▲ Magnolia Petroleum Co., Beaumont, Tex. Owner Builds. $2,225,000. 25,000 bbl. daily capacity feed preparation system at existing REFINERY to hike jet fuel and hi-octane aviation gasoline production, near BEAUMONT, TEX. CD 9/12.

▲ Hubbard-Hubbel & Nix, 1507 Delano St., Houston, Tex. LB $1,854,472. 367 HOUSING units, Proj. Tex. 9-11-D, DALLAS, TEX. Dallas Housing Auth., 2525 Lucas Dr., Dallas, Tex. (Correction—cost). CD 4/1, under LB.

Erwin-Newman Co., Almeda Rd., Houston, Tex. CA $265,000. 3-unit paint, foundry maintenance SHOP, GARLAND, TEX. Luscombe Airplane Corp., Garland, Tex. CD 12/26.

Resistol Hats, Inc., Garland, Tex. Purchase and Hire and Sub-contracts. $105,000. hat MANUFACTURING unit, GARLAND, TEX.

Southwestern Development Corp., 206 S. Ervay St., Dallas, Tex. Owner Builds. $335,000. 50 DWELLING units, SHERMAN, TEX. CD 9/12.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Utah—TELEPHONE LINES—B.A. 4/28—Emery County Farmers Union Telephone Assoc., Emery, 175 mi. telephone lines, Emery, Emery Co. $75,000. Jackson & Jackson, 19 W. South Temple St., Salt Lake City, engrs. CD 4/26/50.

Utah—TRANSMISSION LINE—B.A. 4/30—Moon Lake Electric Assoc., Inc., Mt. Emmons, 140 mi. 7.2/12.5 kV transmission line, Duchesne Co. $200,000. Jackson & Jackson, 19 W. South Temple St., Salt Lake City, engrs. CD 7/23.

† Washington—B.A. 4/30—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, maintenance dredging in harbor, Port Gamble, CIVENG 45-108-52-50.

BIDS ASKED—BUILDINGS

▲ Calif., San Diego—LIBRARY—B.A. 5/20—City, Civic Center, 3 story, rein.-con. library bldg. $1,000,000. Johnson, Hatch & Wulff, Trust & Savings Bldg., archts. CD 11/23/49.

SOON LETS CONTRACT—BUILDINGS

▲ Calif., San Francisco—HOSPITAL—Permanent Foundation, Broadway and W. MacArthur Blvd., Oakland, soon lets contract. 210-bed hospital in Anza Vista District. $2,300,000. Wulff & Phillips, Pearson-Fourth Ave. Bldg., Portland, Ore., archts. CD 3/12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† U. S. Eng., City-County Airport, Walla Walla, Wash., cancelled bids to have been opened Apr. 8 cold storage bldg. at air force base, Inv. 52-22, MOUNTAIN HOME, IDAHO. Est. $175,000. Will re-advertise. CD 3/6.

▲† Columbia River Constructors, (Morrison-Knudsen Co., Inc., Peter Kiewit Sons' Co., General Construction Co., Henry J. Kaiser Co., Macco Corp., Walsh Construction Co., B. Perini & Sons, Puget Sound Bridge & Dredging Co. and MacDonald, Young & Nelson, Inc.), 319 Broadway, Boise, Idaho, CA, $39,749,997, est. $42,775,610 powerhouse and intake section of Chief Joseph Dam, Bridgeport, CIVENG 45-108-52-28 WASHINGTON. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Mar. 19. CD 3/25, under LB.

▲† A. G. Homann, Lacey, Wash., CA, $1,112,125, CA motor repair shops, tank repair shops and gas station, ENG 45-108-52-111, FORT LEWIS, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Feb. 6. CD 2/12, under LB.

Thorburn & Logozo, 4608 36 Ave. S.W., Seattle, Wash., CA, $93,110, installing 29,000 ft. 6- to 12-in. water mains, dual pumping station, etc., SEATTLE, WASH. Water District 42 c/o Metcalf & Harstad Assocs., engrs., Arctic Bldg., Seattle, 4, Wash. Bids Mar. 31.

▲† Moloney Electric Co., 5390 Bircher St., St. Louis, Mo., CA $1,432,461, nine 56,500 kva transformers for McNary Dam, CIVENG 45-164-52-62, OREGON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Mar. 6. CD 3/12, under LB.

† Associated Pipeline Welders, Inc., P. O. Box 563, Colma 25, Calif., CA, $117,890, imprvt., extention of utilities Naval Air Station, OAKLAND, CALIF. Dist. P. Wks. Office, Twelfth Naval Dist., San Bruno, Calif. Bids Mar. 19. CD 3/5.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Strand & Sons, 3939 University Way, Seattle, 5, Wash., LB, $1,388,900, general contract;

W. A. Botting, 5625 University Way, Seattle, Wash., LB, $444,953, mechanical work for 10 story, bamnt., rein.-con. men's DORMITORY, SEATTLE, WASH. University of Washington, Seattle, 5, Wash. Bids Apr. 1. CD 3/3.

W. G. Clark Co., 408 Aurora Ave., Seattle, Wash., CA $119,842, general const. 60x270 ft., rein.-con. cancy FACTORY, SEATTLE, WASH. Vernell's Fine Candies, Inc., 522 6 Ave. S., Seattle, Wash. Decker & Christenson, 1411 4 Ave. Bldg., Seattle, Wash., archts.

▲ Arnold Constr. Co., 9621½ S. Atlantic Blvd., Los Angeles, Calif. Owner Builds, $5,000,000, 500 frame, stucco DWELLINGS in Fairmont Park, EAST SAN DIEGO, CALIF. L. C. Major & Assoc., 511 N. LaCienega St., Los Angeles, Calif., Archts.

† Stolte, Inc., 8451 San Leandor St., Oakland, Calif. LB, $454,957, BOQ Bldg., ENG 52-50, FORT ORD, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif.

Reuben Spector, 11901 Saltair Terrace, Los Angeles, Calif. Owner Builds, $660,000, 66 frame, stucco DWELLINGS, Springfield and St. Augustine Ave., HERMOSA BEACH, CALIF. Leslie E. Arthur, 323 S. Beverly Dr., Beverly Hills, Calif., archts.

Hadley-Cherry, 8754 Beverly Blvd., Los Angeles, Calif., CA $300,000 31 frame, stucco DWELLINGS in Tract 17344, LANCASTER, CALIF. Raymar Development Co., 8754 Beverly Blvd., Los Angeles, Calif. Roland Russell, 612 S. Glower St., Los Angeles, Calif., archt.

▲ James I. Barnes, 1119 Montana Ave., Santa Monica, Calif. LB, $1,745,000, general contract Juvenile HALL, LOS ANGELES, CALIF. Bd. Supervs. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids Apr. 1. CD 2/27.

M & K Corp., Financial Center Bldg., San Francisco, Calif. LB $299,800, Proj. 29, Delta and Wilde Home SCHOOL addns., SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. CD 8/30.

Mark Investment Co., 511 N. La Cienega St., Los Angeles, Calif. Owner Builds, $400,000, 58 frame, stucco DWELLINGS, 224 St. and Wester Ave. In Tract 16581, LOS ANGELES and TORRANCE, CALIF. L. C. Major & Assocs., 1511 N. La Cienega St., Los Angeles, archt.

G & G Constr. Co., 356 S. Sepulveda Blvd., Manhattan Beach, Calif. Owner Builds, $907,500, constr. 121 frame, stucco, DWELLINGS, MANHATTAN BEACH, CALIF. J. Roberts, 356 S. Sepulveda Blvd., Manhattan Beach, Calif., archt.

▲† Twaits Knudsen, Pershing Square, Los Angeles, Calif., and Macco Corp., 14409 Paramount Blvd., Paramount, Calif., LB $8,898,200, tilt-up construction;

Del E. Webb Constr. Co., S 23 Ave., Phoenix, Ariz., LB, $8,990,000, precast concrete alternate, artillery training facilities, 6 administration bldgs., 76 barracks, 6 mess halls, 10 officers quarters, utilities, etc. Spec. 32628, TWENTY NINE PALMS, CALIF. Eleventh Naval Dist., P. Wks. Bldg., San Diego, Calif. Bids Apr. 2. CD 3/7.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† Alaska—B.A. 5/20—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing labor and materials for Eklutna Power Plant, Eklutna Proj., 33 mi. north of Anchorage. Spec. DC 3704; adv. ENR 4/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† S. Birch & Son, C. F. Lytle & Green Constr. Co., Anchorage, Alaska, LB, $2,935,218, est. $3,479,588 outside utilities to family quarters, barracks commissary, addn. to temp. boiler plant, etc. ENG 95-507-52-47, Elmendorf Air Force Base, ALASKA. U. S. Eng. New Washington Hotel, Seattle, 1, Wash. Bids Apr. 1. CD 3/10.

CANADA

BIDS ASKED—BUILDINGS

Alta., Lethbridge—SCHOOL—B.A. 4/22—Lethbridge School Dist. 51, 323 14 St. S., school and workshops $400,000. Plans deposit $75. Meech, Mitchell & Meech, McFarland Bldg., archts. CD 11/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Alexander Constr. Ltd., 436 71 Ave., Edmonton, Alta., CA, $4,500,000, 21 bldgs. at military base, COLD LAKE, ALTA. Defence Construction (1951) Ltd., Kensington Bldg., Winnipeg, Man. Marani & Morris, 1250 Bay St., Toronto, Ont., archts. D. W. Laird, c/o owner, regional engr. Awarded Mar. 30.

Hydro-Electric Power Comn. of Ontario, University Ave., Toronto, Ont., CA, $73,500, electrical distr. system

at R.C.A.F. Station CENTRALIA, ONT. Defence Constr. Ltd., 441 Queen's Quay W., Toronto. 2B. Ont. H. P. Opie, c/o owner, engr. CD 3/26.

BUILDINGS

LOW BIDS AND CONTRACTS

P. Leitch Constr. Co. Ltd., 170 Scott St., Winnipeg, Man., CA, $500,000, standard high pressure steam plant, RIVERS, MAN. Govt. of Canada, Hunter Bldg., Ottawa, Ont., Defence Construction (1951) Ltd., 400 Kensington Bldg., Winnipeg, Man., engrs.

Diamond Constr. Co. Ltd., 60 Carleton St., Fredericton, N. B., LB, $616,000, Science Service LABORATORY, FREDERICTON, N. B. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Bids Mar. 19. CD 2/15.

K. J. Greene, 18 Rideau St., Ottawa, Ont., CA, $350,000 60-suite, concrete, steel, brick APARTMENT, OTTAWA, ONT. M. Zagerman, Bayview Rd., Ottawa, Ont.

▲ **Community Enterprise Ltd.**, 610 St. James St. W., Montreal, Que., CA, $1,800,000, 200 army officers HOUSING units between Gomin and Fallon Rds., STE. FOYE, QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. Bids Mar. 25. CD 3/11.

LATIN AMERICA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Raymond Concrete Pile Co. Inc.**, Caracas, Venezuela, CA, Approx. $2,380,000, harbor constr., concrete wharf, 450 yds. long, FALCON, VENEZUELA, Republic of Venezuela, Caracas, Venezuela, Ministry of P. Wks., Caracas, Venezuela, engr.

Proposed Projects

WATER SUPPLY

Miss., Vicksburg—City, water treatment plant, distr. sys. extens., $600,000. Bedell & Nelson, 840 Union St., New Orleans, La., consult engrs. CD 4/8/48.

N. C., Oxford—Town, High M. Currin, mayor, Oxford, dam to impound water in 150 acre lake. L. E. Wooten & Co., 306 S. Dawson St., Raleigh, consult. engr.

Tex., Big Spring—Colorado River Municipal Water Dist., Big Spring, laying water pipe line from lake reservoir to oil fields and Snyder. $160,800. CD 11/27/50.

▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., bond election May 1, water storage (concrete ground and elevated steel), $1,601,000; new water lines to developers new additions, $1,700,000; Sumset Booster Water Station, $135,000, water service lines and standardize mains, Pleasant Mound-Pleasant Grove, Lake June areas only, $1,178,000; various water supply mains, $10,736,000. J. G. Rollins, Ch. P. Wks. Engr. CD 2/5.

SEWERS, WASTE DISPOSAL

Mass., Marblehead—Town Bd. Sewer Comn., Town Hall, sewer exten. $100,000. Haley & Ward, 73 Tremont St., Boston, consult. engrs.

Mo., Tarkio—City, City Hall, defeated $230,000 bonds, sewage treatment plant and sewer extensions, etc. Riddle Eng. Co., 1324 Prospect Ave., St. Joseph, consult. engr. CD 3/3.

O., Toledo—Comrs. Lucas Co., Court House, storm sewer in Weston Gardens, to drain area bounded by Byrne Rd., Wayne St., South and Elmdale Aves. known as Dilbone Ditch, $104,441. Guy Neeper, co. engr. CD 11/2/44.

▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., bond election May 1, sanitary sewers throughout city, $8,000,000; storm sewers, $5,432,000; sewage disposal plant, $500,000. J. G. Rollins, Ch. P. Wks. Engr. CD 2/5.

Tex., Houston—David Hannah & Assoc., 800 Main St., storm sewers, $60,000; sanitary sewers, $65,000 in new tract off Old Magnolia Rd.

Wis., Tomahawk—City, sewage treatment plant and sewers, $300,000. J. Donohue Eng. Co., 608 N. 8 St., Sheboygan, consult. engr.

BRIDGES

▲ **N. J., Fort Lee**—Port of New York Auth., 111 8 Ave., New York, 11, N. Y., new plaza and approaches to George Washington Bridge connecting with Palisades Interstate Parkway. $3,735,000.

STREETS AND ROADS

ALABAMA—State Hy. Dpt., Montgomery.

Baldwin Co.—improv. 6 mi. Josephine Rd., $75,000; improv. 9 mi. Green Rd., $100,000. CD 12/18.

▲ **Georgia**—State Hy. Dpt., 2 Capitol Square, Atlanta.

Glynn Co.—superhighway approaching Brunswick River Bridge east of Brunswick, $1,545,000.

O., Toledo—City, City Hall, wid'n., repave Monroe St. from Summit to Bancroft Sts. from present 54 ft. to 60 ft. $294,000. M. J. Curtis, city street div. engr. CD 10/17/49.

Okla., Oklahoma City—City, City Hall, grade and asph. pavement Dist. 1182. $110,000. W. W. Baker, city engr.

▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., bond election May 1, new streets opening and paving, $1,500,000; city-wide street improvs. and paving, $7,690,000. CD 2/5.

EARTHWORK, WATERWAYS

O., Dayton—City, City Hall, eliminate dip in Helena St. between east end of bridge over Miami River and point farther east by raising roadway approx. 3 ft., raising levee along east side of river, north of the bridge. $200,000. John Hale, city engr. CD 5/27/49.

AIRPORTS

Kan., Kansas City—SECURITY FENCE—Bd. Pub. Utilities, Supt. Office, Fairfax Airport, security fence, Fairfax Municipal Airport, $120,000.

▲ **N. Y., Idlewild**—CARGO BLDG., etc.—Port of New York Auth., 111 Eighth Ave., New York, Zone 11, Cargo Bldg. addn., $300,000; lighting and switch house, $3,393,000 both at New York International Airport. CD 4/27/44, under New York.

▲† **Pa., Willow Grove**—NAVAL AIR STATION—Navy Dpt. P. Wks. Office, Phila. Naval Base, Phila.; plans by Capitol Engineering Co., engrs.-archts., Dillsburg, improved facilities for Naval and Marine Air Reserve Training program, incl. exten. 1 runway for use by jet aircraft; addnl. taxiway and aircraft parking areas, utility lines rehabilitated and extended, at Naval Air Station. $5,000,000.

Tex., Brownsville—AIRPORT—City, International Airport improvs. $384,000. J. A. West & W. P. Stevens, c/o Offices CAA, Haslet Rd., Fort Worth, and F. J. Schnitzer, Littlefield Bldg., Austin, engrs. CD 2/19.

▲ **Tex., Dallas**—AIRPORT—City, City Hall, Main and Harwood Sts., bond election May 1, airport improvs., mostly Love Field, $1,500,000. J. G. Rollins, Ch. P. Wks. Engr. CD 1/21.

▲ **Tex., Houston**—TERMINAL BLDG., etc.—City, City Hall, 900 Brazos St., second stage terminal bldg., $804,000 paving, $345,000 at Houston Municipal Airport. CD 6/5.

LATIN AMERICA

▲ **Chile, Concepcion**—FACTORY—Puente Alto Paper Co., Concepcion, cellulose and news print factory, $10,000,000. Chilean Development Corp., Santiago, engrs.

▲ **Mexico, Mexico City**—Salvador Lutteroth, Arena Mexico, Mexico City, plans 22,000-seat sports arena, $1,750,000. Jose Francisco Bulman, G. Barreda 15, Mexico City, archt.

Mexico, San Blas—State Govt., Palacio del Estado, Tepic Nayarit, plans tourist resort, $500,000.

PUBLIC BUILDINGS

▲ **Ala., Adamsville**—HOUSING—Adamsville Housing Auth., Adamsville, 115 housing units, $1,000,000.

Ala., Aliceville—HOUSING—Aliceville Housing Auth., Aliceville, 44 housing units, $450,000.

Ala., Brookside—HOUSING—Brookside Housing Auth., Brookside, 88 housing units, $900,000.

Ala., Calera—HOUSING—Calera Housing Auth., Calera, 44 housing units, $450,000.

Ala., Chatom—HOUSING—Chatom Housing Auth., Chatom, 56 housing units, $550,000.

▲ **Ala., Decatur**—HOUSING—Decatur Housing Auth., Decatur, 100 housing units, $1,000,000.

Ala., Gardendale—HOUSING—Gardendale Housing Auth., 62 housing units, $600,000.

Ala., Georgiana—HOUSING—Georgiana Housing Auth., Georgiana, housing units, $600,000.

Ala., Graysville—HOUSING—Graysville Housing Auth., Graysville, housing units, $750,000.

▲ **Ala., Mulga**—HOUSING—Mulga Housing Auth., Mulga, 230 housing units, $2,000,000.

Ala., Opelika—HOUSING—Opelika Housing Auth., Opelika, 74 housing units, $800,000. CD 7/27/50.

▲ **Ala., Talladega**—HOUSING—Talladega Housing Auth., Talladega, 114 housing units, $1,100,000.

Ala., Union Springs—HOUSING—Union Springs Housing Auth., 50 housing units, $500,000. CD 4/19/51.

Ala., Warrior—HOUSING—Warrior Housing Auth., Warrior, housing units, $500,000.

▲ **Ark., Little Rock**—HOUSING—Little Rock Housing Auth. c/o Commercial National Bank, erecting slum clearing project, $2,000,000. L. A. Henry, Pyramid Bldg., consult. engr. CD 5/17/50.

Calif., Martinez—SCHOOLS—Martinez Elementary and Alhambra Union High School Districts, Martinez $904,000 bond election May 16, schools. CD 2/12/48.

▲ **Calif., Redwood City**—SCHOOLS—Sequoia High School Dist., Redwood City, $2,250,000 bond election May 16 new schools, etc.

Calif., Woodland—SCHOOL—Woodland High School Dist., Woodland, $975,000 bond election May 20, East Yolo High School.

▲ **Conn., Meriden**—HOUSING—City Housing Auth., Gale Ave., plans by Louis R. Fucito, 141 S. Elm St., Waterbury, moderate rental housing, $1,500,000.

Ga., Statesboro—HOUSING—Statesboro Housing Auth., Statesboro, 88 housing units, $900,000.

▲ **Ga., Swainsboro**—HOUSING—Swainsboro Housing Auth., Swainsboro, 100 housing units, $1,000,000.

▲ **Ga., Thomson**—HOUSING—Thomson Housing Auth., Thomson, housing units, $1,000,000.

Ga., Vidalia—HOUSING—Vidalia Housing Auth., Vidalia, 50 housing units, $450,000.

Ga., Washington—HOUSING—Washington Housing Auth., Washington, 50 housing units, $450,000.

▲ **Ill., Edwardsville**—SCHOOLS—Edwardsville Community School Dist. 77, voted $1,500,000 bonds, new school bldgs. and remodeling and imprv. existing bldgs. CD 8/30/45.

▲ **Md., Baltimore**—SCHOOLS—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, plans by Edw. H. Glidden Jr., 414 Equitable Bldg., Zone 2, school, Gwynns Falls Parkway, $1,500,000; plans by Palmer, Fisher, Williams & Nes, 1020 St. Paul St., West Southwest Baltimore Senior High School, Edmondson and Athol Aves., $3,250,000; plans by Taylor & Fisher, 1012 N. Calvert St., Pimlico Junior High School, Park Heights and Kenesik Ave., $2,500,000; plans by F. L. W. Moehle & Assoc., 2514 N. Charles St., Glenmount School No. 235 addn., Glenmore and Glenmount Ave., $300,000; plans by David Harrison, 421 St. Paul St., Day School Camp for colored boys, three 1 story, stone buildings, altering 2 buildings, gymnasium, shop, caretakers and teachers cottage, Edmondson Blvd., $300,000, Egli & Gompf, Inc., 1019 N. Calvert St., mech. engrs.; plans by Cyril H. Hebrank, 20 E. Lexington St., reconversion of existing bldg. into school, Preston and Eden Sts., $300,000; plans by Wrenn, Lewis & Jencks, 113 W. Mulberry St., Fallstaff Elementary School No. 241 addn., Fallstaff Rd. and Gist Ave., $300,000, R. E. L. Williams, c/o owner, bldg. constr. engr.

Md., Rockville—SCHOOL—Bd. Educ. Montgomery Co., plans by Ronald S. Senseman, 327 Carroll St. N.W., Wash., D. C., 2 story, 350x450 ft., rein.-con., brick, cinder block Junior-Senior High School, Wheaton, $750,000.

Mich., Flint—SCHOOL—City, Bd. Educ., Flint, plans by Louis C. Kingscott & Assoc., 511 Monroe St., Kalamazoo, 2 story, bsmnt., brick, steel, concrete McKinley Junior High School addn. $500,000. CD 4/12/51.

▲ **Mich., Port Huron**—CITY HALL, etc.—St. Clair Co. and City of Port Huron, plans by Smith-Hinchman & Grylls, Inc., 800 Marquette Bldg., Detroit, 3 story, brick, steel, concrete city hall, office and jail, $2,200,000; Wyeth & Harman, Inc., Port Huron, consult. engr. CD 11/51.

▲ **N. M., Carlsbad**—HOSPITAL—Eddy Co. c/o Comrs. Court, Carlsbad, 100-bed hospital. $1,000,000.

▲ **N. Y., Brooklyn**—HOUSING—New York City Housing Auth., 63 Park Row, New York, Zone 3B, Second Sect., Albany Houses, for 400-families, on 4.96 acre site bounded by Bergen St. and Troy, St. Marks and Albany Aves. $5,175,000.

▲ **N. Y., New York**—HOUSES—New York City Housing Auth., 63 Park Row, Zone 3B, Mill Brook Houses for 900 Families, on 12.37 acre site bounded by E. 137 St., Cypress Ave., E. 135 St., and Brook Ave., Bronx Boro. $15,900,000. CD 3/18/48.

▲ **N. Y., Rockaway**—HOUSING—New York City Housing Auth., 63 Park Row, New York, Zone 3B, plans by Lorimer & Rose, 254 W. 54 St., New York, Zone 19, Hammel Houses, 14 seven story bldgs. for 712 families on site bounded by Rockaway Beach Blvd., Beach 86 St., Hammels Blvd., and Beach 81 St. $9,760,000. CD 10/18/50.

▲ **O., Cincinnati**—SCHOOLS—Bd. Educ., 216 E. 9 St., Cumminsville Junior High School, Westwood Junior High School, Kennedy Junior High School, Madisonville Junior High School, Elbrook Ave. (Amberley) Elementary School, Duck Creek Elementary School, Mt. Airy Elementary School and Basin Elemetary School, est. $11,650,000; Winton Pl. School addn.; Cheviot School addn., North Avondale School addn., Kilgour School addn., Withrow High School addn., Westwood School addn., Hartwell School addn., Walnut Hills High School, etrance roadway; reconversion of various spaces, misc. rehabilitation to Hughes Woodward, Rothenberg and Stowe Schools. $1,950,000. Basin Elementary School and site enlargements, $400,000. CD 11/15.

▲ **O., Columbus**—SCHOOLS—Bd. Educ., 270 E. State St., plans by Edward Kromer, 2445 Kensington St., 3 story, brick, steel Mohawk School, $1,500,000; plans by Brooks & Coddington, 329 E. Broad St., 2 story, brick, steel, concrete school, $450,000.

▲ **O., Columbus**—HIGH SCHOOL—Bd. Educ., 270 E. State St., plans by Benham, Richards & Armstrong, 167 E. State St., 3 story, steel, concrete brick Junior High School. $1,500,000.

▲ **O., Dayton**—SCHOOLS—Bd. Educ., Van Buren Twp. Far Hills Ave., $1,200,000 bond election May 6 school building program, incl. one new grade school and addns. to existing schools.

Okla., Blackwell—HOSPITAL—City, plans by Timberlake & Brown, Ponca City, hospital $509,000.

▲ **Okla., Oklahoma City**—SCHOOLS—Bd. Educ., 400 N. Walnut St., voted bonds, elementary schools. $4,000,000. CD 2/12.

Pa., Harrisburg—SCHOOL—Harrisburg School Dist., 121 Chestnut St., plans by Clayton J. Lappley, Riverview

(Continued on page 120)

New Ultra-modern Low-Friction truck engines give you

Gas Savings UP TO 14%

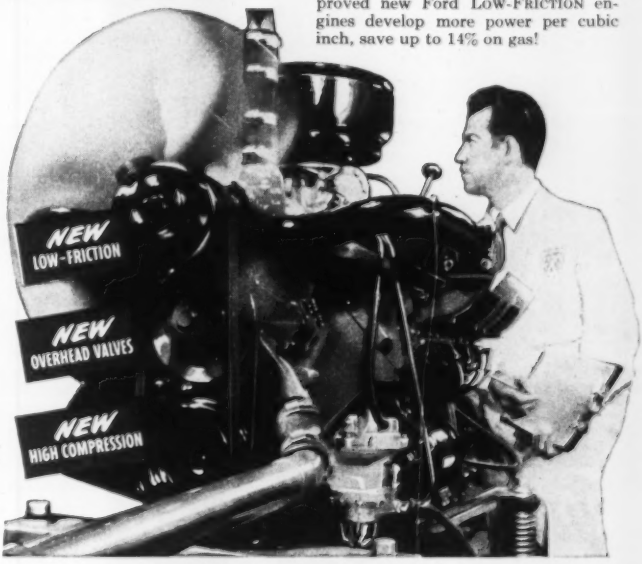
Designed for today's Speed Hauling needs!

DYNAMOMETER TESTS like this, over 50,000 hours on one engine model alone, proved new Ford LOW-FRICTION engines develop more power per cubic inch, save up to 14% on gas!

New LOW-FRICTION design LIBERATES POWER ordinarily held "captive" by engine friction! IT SAVES GAS! It saves wear!

Good news for truck users! Ford's new, ultra-modern LOW-FRICTION truck engines break away from the traditional "European" long-stroke piston design. They introduce a friction-reducing *short-stroke* in three completely new engines in Ford Trucks for '52.

Ford LOW-FRICTION design incorporates new direct-breathing OVERHEAD-VALVES . . . gives you new HIGH-COMPRESSION, for extra wallop to meet today's Speed-Hauling needs. Here's truck engineering that your Ford Dealer will be proud to tell you more about today!



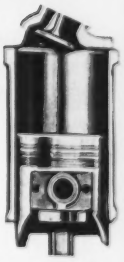
NEW LOW-FRICTION DESIGN

OVERHEAD VALVES for deeper direct "breathing"!

HIGH-COMPRESSION punch with regular gas!

SHORT STROKE cuts piston travel up to 20%!

Friction reduced in many ways: Autothermic Pistons have built-in clearance control. **Precision-molded Alloy Crankshaft** cuts friction and wear at journals. **New Full-Flow Oil Filter** screens every drop of oil every time around. **Result:** Up to 30% cut in friction "power-waste" . . . the big reason why Ford can promise gas savings up to 14%!



Availability of equipment, accessories and trim, as illustrated, is dependent on material supply conditions.

For '52 Ford offers a full line of trucks from half-ton Pickups to 20-ton (G.C.W.) BIG JOBS. 5 great engines from 101 h.p. to 155 h.p., V-8 or Six. 3 new LOW-FRICTION engines, plus famed V-8 (now 106 h.p.) and Big Six (now 112 h.p.)!

FREE

MAIL THIS COUPON TODAY!

Ford Division of FORD MOTOR COMPANY
3255 Schaefer Rd., Dearborn, Mich.

Please send me without charge or obligation, complete details on the new Ford Trucks for '52 and the five great Ford Truck Engines!

FULL LINE ☐ HEAVY-DUTY MODELS ☐
LIGHT MODELS ☐ EXTRA HEAVY-DUTY MODELS ☐

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FORD TRUCKS for '52 cost still less to run!

Harrison County backfills and grades with aid of TOURNADOZER

Rubber-tired D Tournadozer stockpiles sand behind seawall for jetting.

When Harrison County, Mississippi, needed a dozer to work in ocean blow sand, they arranged for a demonstration of a LeTourneau Tournadozer to check the reported outstanding advantages of this new, high-speed, rubber-tired dozer on sand operations. After seeing the machine work the County Board of Supervisors agreed whole-heartedly with the recommendation of County Engineer Arthur MacArthur and authorized purchase of this versatile, modern machine.

One of its first assignments was to move in material for renewing washed-out back-fill and foundation material under a section of the 24-mile seawall between Pass Christian and Biloxi. This work was a preliminary to the placement of approximately 4,000,000 cu. yds. of sand fill which is being pumped hydraulically from the Gulf to form a 300′ wide sand beach.

Tournadozer backfills walls, levels beach

Tournadozer picked up blow sand (similar to Michigan dune sand) lying between Highway 90 and the seawall and dozed it against the wall, from where it was jetted under the wall foundation. Where available, additional sand was dozed in to complete the back-fill. Where insufficient material was available on the land side of the seawall, a dragline will be used to excavate sand pumped in on the beach side and cast over behind the wall for jetting. Later, the Tournadozer will level off the 300′ wide beach behind the hydraulic operation to a 2% grade from seawall to water line. The entire area between wall and road will also be "dressed" with Dozer for appearance and surface will be leveled to reduce drifting from wind and wave action.

Speed and flotation beats blow sand

Since the beach sand in this area has underlying quicksand in some spots which will not carry the weight of as heavy a machine as the Tournadozer, unit is equipped with a rear-end winch. It is surprising how well the machine handles in the new fills of soft blow sand, and the high-speed operation enables it to travel right through some of the worst soft spots. Occasionally, however, the winch comes in handy to pull out where advantages of high speed plus flotation of the big, soft tires are not enough to keep the machine rolling through larger quicksand areas.

"Can hardly believe it," says County Engineer

Engineer MacArthur, Harrison County, enthusiastically says, "I can hardly believe this is tough sugar sand

LETOURNEAU EQUIPMENT

R. G. LeTOURNEAU, INC.
PEORIA, ILLINOIS

24 miles of tough blow sand

Note flotation of large tires over freshly dozed blow sand.

we're working in after seeing the Tournadozer perform in it." Construction men who have worked the light sand areas of the gulf beaches will appreciate MacArthur's enthusiasm.

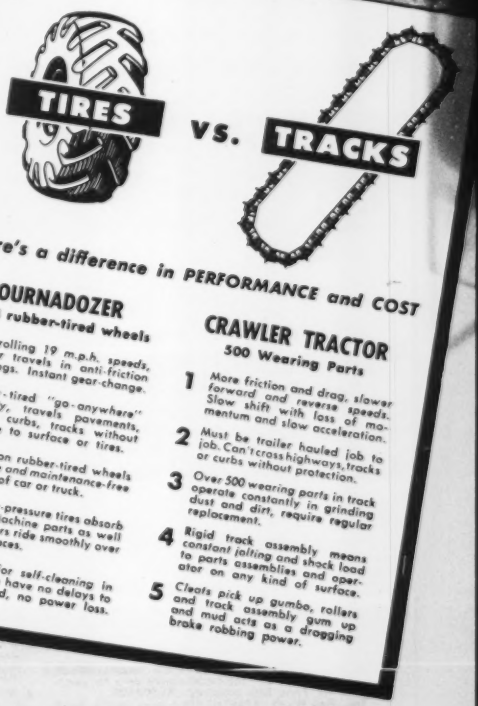
Travels 20 miles a day doing odd job maintenance

When Tournadozer gets ahead of the jetting operations, the versatile one-man dirtmover heads out for other assignments, frequently traveling 20 miles a day throughout the county to take care of odd-job maintenance. It has knocked down trees, stacked brush, cut down clay hills for bridge approaches, and handled many a small-volume earthmoving job.

Save taxpayer money and speed service

You, too, can save taxpayer's money on more jobs done with less equipment, less manpower, less travel time, and less time lost synchronizing men and equipment for small scattered jobs. The "go-anywhere" Tournadozer will speed "do-it-now" calls by eliminating truck and trailer hauling, loading, and blocking. It gets there faster, does the job faster, gets to the next assignment faster. See your LeTourneau Distributor for job-proved facts.

Tournadozer—Trademark Reg. U. S. Pat. Off.


TIRES
vs.
TRACKS
There's a difference in PERFORMANCE and COST
TOURNADOZER
only 4 rubber-tired wheels
1 Free-rolling 19 m.p.h. speeds, power travels in anti-friction bearings. Instant gear-change.
2 Rubber-tired "go-anywhere" mobility, travels pavements, crosses curbs, tracks without damage to surface or tires.
3 Travels on rubber-tired wheels as simple and maintenance-free as those of car or truck.
4 Giant low-pressure tires absorb shocks. Machine parts as well as operators ride smoothly over rough surfaces.
5 Tires flex for self-cleaning in gumbo. You have no delays to dig out mud, no power loss.
CRAWLER TRACTOR
500 Wearing Parts
1 More friction and drag, slower forward and reverse speeds. Slow shift with loss of momentum and slow acceleration.
2 Must be trailer hauled job to job. Can't cross highways, tracks or curbs without protection.
3 Over 500 wearing parts in track operate constantly in grinding dust and dirt, require regular replacement.
4 Rigid track assembly means constant jolting and shock load to parts assemblies and operator on any kind of surface.
5 Cleats pick up gumbo, rollers and track assembly gum up and mud acts as a dragging brake robbing power.

HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

(Continued from page 116)

Manor Apartments, Hamilton School addn., 6 and Hamilton Sts. $600,000. CD 11/14/50.

S. C., Clinton—HOUSING—Clinton Housing Auth., Clinton, 70 housing units. $600,000. CD 6/16/50.

S. C., Cowpens—HOUSING—Cowpens Housing Auth., Cowpens, 54 housing units. $500,000.

S. C., Greer—HOUSING—Greer Housing Auth., Greer, 65 housing units. $550,000.

S. C., Pendleton—HOUSING—Pendleton Housing Auth., housing units. $400,000.

S. C., Winnsboro—HOUSING—Winnsboro Housing Auth., Winnsboro, housing units. $700,000.

▲ Tex., Dallas—LIBRARY—City, City Hall, Main and Harwood Sts., bond election May 1, public library. $1,250,000. J. G. Rollins, Ch. P. Wks. Engr.

▲ Tex., Dallas—SERVICE CENTERS, etc.—City, City Hall, Main and Harwood Sts., bond election May 1, service centers, storage for equipment supplies, etc. $750,000; repair garage, $250,000. J. G. Rollins, Ch. P. Wks. Engr. CD 2/5.

▲ Tex., Houston—ENGINEERING, etc.—University of Houston, 3801 Cullen Blvd., engineering bldg. $3,000,000; plans by Alfred C. Finn, Bankers Mortgage Bldg., 3 story, 18,000 sq. ft. limestone exterior, concrete frame science bldg. addn. $300,000. CD 3/23/45; student center, $2,000,000. CD 5/7/41.

▲ Tex., Lubbock — SCHOOLS — Lubbock Independent School Dist., Lubbock, Senior High School, $1,250,000; Elementary School 1, $350,000; Elementary School 2, $400,000. CD 8/4/50.

Tex., San Antonio—HOUSING—San Antonio Housing Auth., 400 Labor St., Tex. 6-14, 100 low-cost housing units, northside of city. $750,000. CD 10/24/49.

▲† Va., Norfolk—HOSPITAL—Fifth Naval Dist., Naval Station, Zone 11, Naval Hospital, near here. Site not selected. $16,000,000.

▲ Wash., Richland—SCHOOLS—School Bd., Richland plans by J. W. Maloney & J. H. Whitney, Larson Bldg. Yakima, Columbia High School addn. $1,750,000. CD 4/20/50.

▲ Ont., Cornwall—HOSPITAL—City, F. Lefebvre, chn. plans by H. H. Roberts, Westport, 150-bed hospital in East Cornwall to be known as Sacred Heart Hospital. Approx. $2,000,000.

Sask., Moose Jaw—SCHOOL—Province of Saskatchewan, Regina, school for mental defectives. $900,000. Dpt. P. Wks., Regina, engr.

Sask., Saskatoon—POWER PLANT, etc.—Provincial Department P. Wks., Parliament Bldgs., Regina, Sask., plans by Webster & Gilbert, 212 CPR Bldg., Saskatoon, Sask., power plant and connecting tunnels for heating system for University of Saskatchewan campus, $760,000. H. H. Angus & Assocs., 1221 Bay St., Toronto, consult. engrs. CD 9/5.

COMMERCIAL BUILDINGS

Ala., Montgomery—RESIDENTIAL DEVELOPMENT—Annie Patterson Wilson Development Co., c/o J. M. Garrett & Sons, engrs., 1105 Cleveland Ave., residential development, Approx. $500,000.

Conn., Glastonbury—APARTMENT—Stewart A. Barkland, 150 Greenway Terrace, Forest Hills, N. Y., plans by Sullivan W. Jones Assoc., 110 E. 42 St., New York, N. Y., apartment bldg., between Hebron Ave. and Clinton St. $600,000.

▲ D. C., Wash.—APARTMENT—Morris A. Kanfer, 15 and H Sts. N. W., plans by Corning & Moore, 1726 M St. N. W. 532 apartments in two buildings parking garage Connecticut Ave. between Albemarle and Brandywine Sts. N. W. $3,000,000.

Kan., Parsons — HOTEL — Community Hotel Directors, c/o American Hotels Corp., 570 Lexington Ave., New York, N. Y., plans by Design, Inc., 906 Sidney St., St. Louis, Mo., 10 story hotel.

Kan., Wichita—NIGHT CLUB—Harold L. Bodenheimer, 2714 E. Ninth St., plans by Glen Benedict, 254 Laura St., night club, E. Kellogg St. $500,000.

Neb. Axtell—CONVENT—Bethpage Mission, Axtell, plans by Helleberg Son, Kearney, sister's home and an occupational and social therapy bldg. $500,000.

O., Columbus—CLUB HOUSE—Scioto Country Club, 2196 Dublin Rd., plans by Benham, Richards & Armstrong, 167 E. State St., 1½ story concrete, steel club house. $400,000.

▲ O., Cincinnati—HOMES—Warren E. Richards Co., 4th St., plans by Pease Woodwork Co., Blue Rock and Turrill Sts., 95 one-family 36x30 ft. prefabricated frame homes in Glendale area, $1,330,000. Wilford Miller, c/o owner, engr.

▲ Okla., Tulsa—HOUSING—L. Morgan Kennedy Bldg., housing, 11 and Admiral Sts. $1,000,000. Ben O. Kirkpatrick, Alvin Bldg., engr.

Pa., Harrisburg—OFFICE—Ben Gainsburg, Commerce Bldg., plans by William L. Murray, 1600 N. 2nd St., office at 124 Pine St. $500,000.

▲ Tex., Abilene—BUILDINGS—Abilene Christian College, Abilene, plans by Wilson & Patterson, 209 Majestic Bldg., Fort Worth, academic bldg. $750,000; field house, athletic field. $400,000; student center, $450,000; college bldg. addns. $1,750,000. CD 8/2.

▲ Tex., Daingerfield — HOUSING — Federal Housing Admin., 1114 Commerce St., Dallas, 400 unit defense housing. $3,000,000.

▲ Tex., Del Rio—HOUSING—Federal Housing Admin., 610 S. Flores St., 200 rental housing units for Laughlin Air Force Base occupancy. $1,500,000.

Tex., Fort Worth—APARTMENTS—Jarvis Heights Apartments, c/o Norman Apstun, c/o Charles E. Armstrong, archt., 351 Majestic Bldg., 25 duplex apartments 35 St. $575,000; 22 apartments units, 5 laundry bldgs., one administration bldg., off Decatur Rd., $525,000.

Tex., Fort Worth—DWELLINGS—Seward Shurtlaff, Box 10308, sixty 850 sq. ft. each frame dwellings, concrete slab fdn., sheet rock, $450,000.

Tex., Houston—DWELLINGS—E. L. Bang, 6206 Pickens St., 45 frame dwellings, east of Kuhlman Rd. $350,000; 40 frame dwellings, asbestos siding, concrete slab fdn. east of Kuhlman Rd. $315,000.

▲ Tex., Houston—DWELLINGS—Oak Building Co., c/o L. O'Donnell 9102 Humble Rd., 35 mostly frame dwellings, $310,000; 75 dwellings, $550,000; 60 dwellings, $450,000; 40 dwellings, $340,000; 50 dwellings, $375,000, all foregoing east of Lillia Rd., and south of Aldine-Western Rd.

▲ Tex., Houston — DWELLINGS — O'Donnell Brothers, 11309 W. Hardy St., Project 1, (a) 30 dwellings, $300,000 (b) 40 dwellings, $350,000 (c) 55 dwellings, $375,000, foregoing in new area of Chatwood Addition; Project 2, Job 1, 35 dwellings, $325,000, Job 2, 48 dwellings, $360,000, Job 3, 44 dwellings, $345,000, foregoing in an area of Templebrook Addition; Project 3, 28 dwellings, $300,000; 45 dwellings, $350,000; 36 dwellings, $340,000, foregoing in an area of Glenmanor Addition; Project 4, (a) 25 dwellings, $310,000 (b) 35 dwellings, $350,000 (c) 40 dwellings, $360,000, foregoing in an area of Hawthorne Place.

Tex., Houston—DWELLINGS—O. Strother Simpson & Assoc., Sterling Bldg. 50 dwellings, $375,000, new sect. of Westheimer Rd.

Tex., San Antonio—DWELLINGS—Mayer & Jones, 7701 Broadway, plans by Ernest Reed, 3339 Fredericksburg Rd., 28 masonry, frame dwellings, concrete slab fdn. in area of Shearer Hills, $300,000.

Ont., Cornwall—HOTEL—Hotell Cornwallis Co., Ltd., L. N. Nedler, pres., 24 Second Ave. W., plans by Sydney & C. S. Comber, 113A Pitt St., hotel addn. Approx. $750,000. CD 1/14.

▲ Ont., Sault Ste. Marie—HOUSING—L. G. Wilson, 327 Pim St., 230 houses, on Hy. 17, east of here, $2,000,000.

INDUSTRIAL BUILDINGS

▲ Calif., Los Angeles—PLANT, etc.—B. F. Goodrich Co., 500 S. Main St., 175,000 sq. ft. tire and tube plant and warehouse, $2,000,000. CD 7/30.

Conn., Stratford—FACTORY—Tek Bearing Co., 924 Lafayette St., Bridgeport, plans by Chas. E. Tilton, 660 Madison Ave., New York, N. Y., 1 story, 102x120 ft. factory, Stratford Ave.

Fla., Hialeah—MILL—Craftsmen Village, Inc., Hialeah, rebuild mill. $100,000.

Fla., Pensacola—MILL—St. Regis Paper Co., Cantonment, Pensacola, rebuild mill, $400,000. CD 7/25/45.

Ga., Rome—MILL—Anchor Rome Mills, Rome, plans by Robert & Co. Assocs., 96 Poplar St. N.W., Atlanta, mill addns. Approx. $100,000. CD 12/21/50.

Ind., Indianapolis—SALES AND SERVICE—Cummins Diesel Sales Corp., subsidiary of Cummins Engine Co., Columbus, 1 story, 12,500 sq. ft. sales and service bldg., 3100 English St. $250,000

Ia., Camanche—PLANT—Maquoketa Co., plant, $300,000.

▲ Kan., Turner—PLANT—Fairbanks, Morse & Co., 600 S. Michigan St., Chicago, Ill., 252x702 ft. diesel engine and pump plant machine shop; 292x422 ft. foundry with partial bsmnts. $6,000,000, Lester B. Knight & Assoc., Inc., 600 N. Jackson St., Chicago, Ill., engr.

▲ Ky., Winchester—PLANT—Sylvania Electric Products Co., St. Mary's, Pa., photo flash bulbs plant on 26 acre tract, $4,000,000.

Mass., Roxbury—PLANT—Columbia Packing Co., 155 Blackstone St., Boston, plans by Henschein-Everds & Crombie, 59 E. Van Buren St., Chicago, Ill., 1 story, steel, concrete, masonry meat packing plant.

Mich., Detroit—FACTORY—Paramount Boring Machine Co., 12640 Mansfield St., plans by White & Griffin, 126 John R. St., 1 story, brick, masonry factory addn., Mansfield St. $100,000.

Mich., Flint—PLANT—Flint Journal, Flint, plans by William Edward Kapp, 1842 Buhl Bldg., Detroit, 2 story, 93x100 ft., brick, steel, concrete newspaper publisher plant, $175,000.

Mich., Flint—WAREHOUSE—Flint Structural Steel Div. Mississippi Valley Structural Steel Co., 3154 Davison Rd., 1 story, 130x300 ft., brick, steel warehouse, $175,000.

Mich., Greenville — PLANT — Gibson Refrigerator Co., Greenville, 1 story, 70x300 ft., brick, masonry plant, $190,000.

▲ Mich., Kalamazoo—PLANTS—Upjohn Co., Kalamazoo, cortisone plant, $3,500,000; laboratory addn., $4,300,000; antibiotics plant, $3,400,000. CD 3/26/47.

▲ Mich., Lansing—PLANT—Fisher Body Div. General Motors Corp., General Motors Bldg., Detroit, 1 story, brick, steel, concrete plant, $1,500,000.

▲ Mich., Muskegon—FACTORY—Shaw Box Crane Div. Manning Maxwell & Moore, Inc., W. Broadway, Muskegon Heights, expansion factory incl. 2 brick, steel buildings, $1,600,000.

▲ Mich., Port Huron—PLANT—Peerless Cement Corp., R. R. Adams, supt., Port Huron, brick, steel plant, $2,000,000.

Neb., Hastings—WAREHOUSE—Merchants Biscuit Co., 30 and Taylor Sts., Omaha, plans by J. T. Allan, drandes Theatre Bldg., Omaha, branch warehouse. $100,000. CD 2/4.

N. Y., Brooklyn—FACTORY—Aywon Wire & Metal Co., 22 Caton Pl., Zone 18, plans by Louis A. Bellini, 44 Court St., Zone 2, 1 story wire factory, 701-83 64 St. $200,000.

N. Y., New York—MANUFACTURING—American Cystoscope Makers, Inc., 1241 Lafayette Ave., Zone 59, plans by Harold W. Austin, c/o owner, mfg. bldg., 515 E. 62 St. $400,000.

▲ O., Cincinnati—CHEMICAL PLANT—Emery Industries, Inc., 4300 Carew Tower, Zone 2, chemical plant addn. 4900 Este Ave. $2,000,000. Roberty Van Tuyle, Dir., c/o owner, engr.

▲ Okla., Miami—PLANT—B. F. Goodrich Co., 500 S. Main St., Akron, O., military tire mfg. plant. $3,000,000. Walter Head, Miami, engr.

Okla., Sulphur—SWITCHING STATION—Oklahoma Gas & Electric Co., 321 N. Harvey St., Oklahoma City, switching station and power plant. $110,000. Leo Lash, c/o owner, engr. CD 2/14/51.

▲ Tenn., Knoxville—PLANT—Electro-Manganese Corp., Proctor St., N. W., plant addns. $2,500,000. CD 2/12/51.

▲ Tex., Beaumont — CHEMICAL PLANT — Morton-Withers Chemical Co., Greensboro, N. C., chemical plant to synthesize petroleum sulfonates near here, $1,780,000.

▲ Tex., Houston—PLANT—Alcma Chemical Co., Ship Channel, chemical plant. $5,000,000.

Tex., Houston—PLANT—Kolker Chemical Works, Ship Channel, 3rd plant unit to mfg. Linedane an insecticide. 475,000.

Tex., Houston—PLANT—The Lummus Co., Milam Bldg., plant expansion, 2-acre site. $500,000.

Vt., Rutland—FACTORY—Owner, c/o Webber & Erickson, archts., 56½ Merchants Row, 1 story, 77x187 ft. concrete block, structural steel factory between Rutland and Clarendon. $150,000.

▲ Newfoundland, St. John's—FACTORY—Atlantic Hardboards Industries Ltd., c/ Province of Newfoundland, St. Johns, factory at Donovans about 7 mi. from here. Approx. $1,000,000.

Ont., Sault Ste. Marie—PLANT IMPRVS.—Abitibi Power & Paper Co., Ltd., Sault Ste. Marie, Ont., plant imprvs. conversion hydraulic grinders to electrical operation. $750,000. CD 9/28.

▲ Ont., Toronto—MARINE TERMINAL—Liquifuels Ltd., 347 day St., marine terminal bldg. incl. steam plant and unloading bldg. at undetermined Toronto Site, $3,000,000, C. A. Meadows & Assoc., 4 Grange Rd., consult. engrs.

UNCLASSIFIED

Ark., Bella Vista—RESORT FACILITIES—E. L. Keith, Cave Springs, expanding facilities at Bella Vista Resort, lake, imprv. grounds, new cabins, etc. $300,000.

Illinois—RURAL DISTRIBUTION LINES—Farmers Mutual Electric Co., Genesco, 11 mi. 69 kv transmission line and sys. imprvs., Henry Co. $164,000.

La., Clayton—NATURAL GAS SYSTEM—Town, natural gas sys. $100,000. Bedell & Nelson, 840 Union St., New Orleans, consult. engrs. CD 3/27.

Me., Rockland—PIER—City, Bd. Trustees, Erwin L. Martin, chn., City Hall, municipal pier. $150,000.

Texas—RURAL DISTRIBUTION LINES—Bailey County Electric Co-operative, Muleshoe, electric distr. and transfer lines, sub-stations, Bailey Co. $200,000. H. N. Roberts & Assoc., Lubbock, consult. engrs. CD 12/18.

Texas—RURAL DISTRIBUTION LINES—Rio Grande Electric Co-operative, Bracketville, 50 mi. rural distr. lines; 75 mi. transmission lines, related sub-station, Kinney Co. $520,000.

Texas—ELECTRIC POWER LINES—Rusk-Panola Electric Assn., Carthage, reconstruct considerable electric power lines due to recent storm, Rusk and Panola Counties. $100,000.

Texas—PUMP STATIONS—West Texas & Gulf Pipe Line Co., Gulf Bldg., Houston, plans by Hamilton Brown, 2017 W. Gray St., Houston, pump station at Ranger. $85,000; Colorado City, $100,000; Wortham, $100,000. CD 3/20.

Tex., Burnet—RESORT HOTEL, etc.—Texas State Park Bd., State Bldg., Austin, plans by Page, Southerland & Page, 602 West Ave., Austin, resort hotel and cottages at Inks Lake, to include 100 rooms. $500,000. CD 3/31.

Tex., Dallas—TRAFFIC SIGNAL—City, City Hall, Main and Harwood Sts., bond election May 1, electric traffic signal sys. extens. $100,000. J. G. Rollins, Ch. P. Wks. Engr. CD 2/6.

▲ Tex., Houston—PLANT—Diamond Alkali Co., Box 666, Pasadena, 1st unit organic chemical plant. $1,500,000. CD 11/18/48.

▲† Washington—TRANSMISSION LINES, etc.—Bonneville Power Admin., P. O. Box 3537, Portland, Ore. transmission line, Chief Joseph Dam to Snohomish, $6,955,000; addns. to Spokane to Deer Park sub-stations, $3,649,000; addns. to Wenatchee aluminum plant substations, $3,699,000; Okanogan & Ferry Co. transmission lines, $1,829,000; expending Longview substation, $252,000.

▲ Manitoba—RAIL LINE—Canadian National Rys., 160 McGill St., Montreal, Que., rail line between Sheridan and Lynn Lake. $7,800,000.

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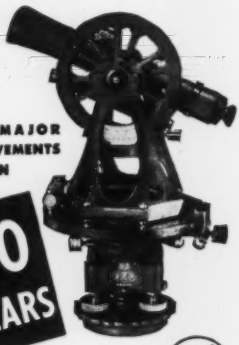

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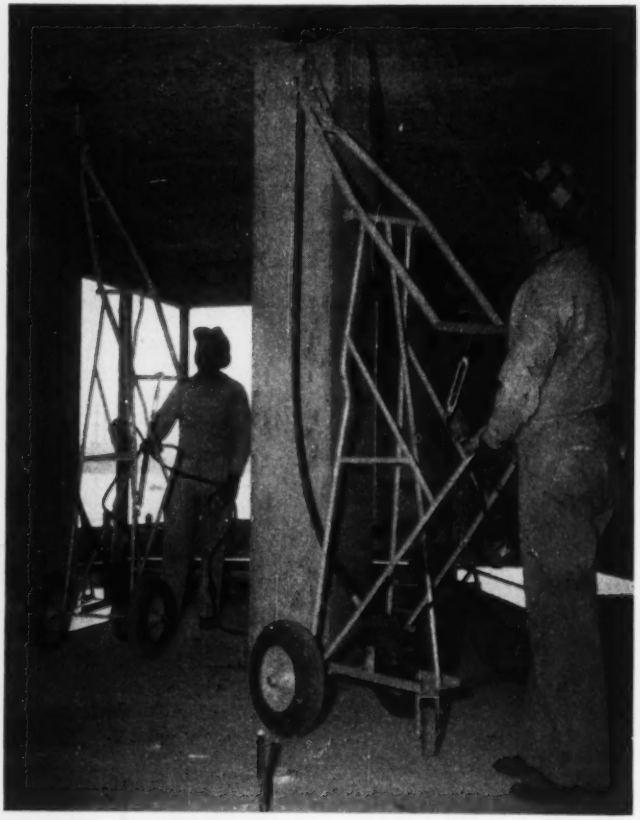

Rubbing ceilings? . . . . . Get a Giraffe!

All of the inconveniences and bother connected with grinding concrete ceilings appear to have been removed in one fell swoop by a versatile machine known as the Giraffe.

You needn't be concerned any more with horses, plank, decking or scaffolds; nor with hand-rubbing stones, masks or goggles. Instead just clean the floor before letting mechanical trades on the scene and let the grinding machines take over. On jobs where they've been used, the operator has completed small area jobs in the time he would have taken to set up scaffolds.

The fully adjustable grinding head will not only remove ribs, fins and board marks from the concrete but with equal ease will remove nails used to secure hangers, light boxes, etc. to the formwork.

A variety of discs is available to suit various needs and they are direct-driven by a flexible 7-ft shaft connected to a 110-v,ac, ¾-hp motor turning at 3,450 rpm. A 3-conductor wire grounds the Mall motor unit and a twist of the turnbuckle controls pressure for various jobs. It's adjustable for ceilings from 7 to 9 ft high and its 28-in width lets it pass through doorways to work on renovation and modernization jobs. Total weight is 148 lb, making it easy to move from floor to floor. Two Giraffes are pictured here at work on one of Industrial Engineering Co's midtown New York apartment building jobs, where they've met with typical approval. "We rented one on a trial basis," said Industrial's job superintendent, Paul Olafsen, "and liked its work so well that we ordered another three days later. They really do a slick job." The machines can be bought or rented from CONCRETE GRINDING CORP., DEPT. R., 300 STRAIGHT ST., PATERSON, NEW JERSEY.

Reinforced roof fabric resembles screening

Looking for all the world like fly screening, a new reinforcing fabric of fireproof Fiberglas threads is recommended for roof leaks, coatings and for waterproofing areas around flashings, chimneys, skylights and firewalls. Trademarked as NO-ROT, its sieve-like mesh enables the coating to bind firmly to the surface below as well as to the membrane itself. As its name indicates, it's said to be impervious to rot or decay, with exceptionally light weight and high tensile strength. Developed especially for use with both grades of Monroe Bufferseal roof coating and Ruffersealit plastic cement, it is extremely flexible and can be fitted snugly around corrugated surfaces, pipes, and into sharp corners to form a tight waterproof seal. THE MONROE COMPANY INC., 10703 QUEBEC AVENUE, CLEVELAND 6, OHIO.

Inexpensive aluminum coat put on iron and steel

There's a new solution to the old problem of how to coat iron or steel efficiently with aluminum and without prohibitive expense. It's called mollerizing, and the company claims that it gives steel all the properties of aluminum except light weight—and at a cost "approaching" that of galvanizing. Although the process is new here, it's old stuff in Europe. Developed in Sweden in 1940 by G. A. Moller due to the relative scarcity of aluminum there, its use has been restricted mainly to marine work of the Swedish government. American Mollerizing Corp. was formed largely to exploit the possibilities for exposed structural steel and other parts subject to atmospheric corrosion. Because of its resistance to acid and heat corrosion, however, the scope has been broadened and firms are testing it in such fields as petroleum, railroads, construction, etc.

Main problem to overcome in coating steel with aluminum was oxidation of the heated steel during transfer from a flux bath to aluminum bath. Moller solved this easily and practically by using a standard electric salt bath furnace. Molten aluminum thus floats on the molten salt; steel is dipped through the aluminum, left until it reaches the 1,500 deg temperature of the salt and slowly withdrawn. A direct electric current assists bonding. The process forms a steel-aluminum alloy at the interface, giving a complete bond that will not crack even when a paper thin strip of coated metal is folded. The interface is non-porous, giving mollerized metal this

(Continued on next page)

ANOTHER
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Board of County Commissioners, Pinellas County, Fla. From left to right on Wood Roadmixer: H. Hosey Wick, Vice Chairman; Edward H. LaVoie, Chairman; Sidney S. Parry. Standing next to mixer: James R. Shipcraft. Behind man with cap: John Chesnut. Photo by: Landwehr & Landwehr, Largo, Fla.

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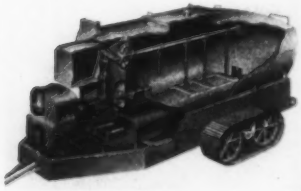
advantage over stainless steel for some applications. Any size furnace and all standard size equipment can be used.

The company has carried out comparison tests between mollerized and galvanized metal by suspending a piece of each from an ocean pier at such a height that they were alternately submerged and free of the salt water at high and low tides. After 95 days the galvanized piece had corroded heavily and was completely covered with barnacles while the mollerized piece was clean and intact. In comparing the weight advantage, the company claims that 3 lb of zinc are needed for the same coating job that one pound of aluminum will cover. THE AMERICAN MOLLERIZING CORP., BEVERLY HILLS, CALIFORNIA.



Dope kettle features double agitation

A new type dope kettle has been placed on the market and it features double agitation with a marine type propeller and a slow speed bottom sweep. Another improvement is the combustion chamber which has a double gas pass for bottom protection and fuel economy. In independent lab tests under operating conditions only a 5% differential existed between top and bottom of the kettle. Samples of mix to determine distribution of the filler showed only a 1% differential, reports the manufacturer. A two-inch thickness of rock wool provides insulation on all exposed areas. During tests, high temperatures have been maintained on a full night holdover, and a simple plug-type, draw-off valve, kept warm by a hot dope jacket has been installed to prevent freezing during shut-down periods. This valve is rugged enough to shut off regardless of the passage of foreign matter.

The C-R-C "SP" kettle has a 27-barrel capacity and weighs 17,020 lb. with tracks. Another welcome feature is the elimination of unpleasant decoking. A heavy-duty hydraulic cylinder actuates the bottom sweep and its continuous travel across the bottom prevents the formation of coke. CRUTCHER-ROLFS-CUMMINGS, INC., HOUSTON, TEXAS.

Multi-stage centrifugal pump designed for shallow or deep wells

A new multi-stage Dayton electric pump, for use in both deep and shallow wells, makes use of the axial flow principle and is claimed to be up to 20% more efficient than any pumps of similar horsepower. In addition to the adoption of this axial flow principle, design engineers specified multi-stage diffusers of brass or steel instead of the customary iron castings. Since all water passages are smooth, friction loss is reduced and water-per-horsepower increased. Separate castings for impeller housings have been eliminated. The steel pump case is a one-piece affair and the pump includes an adapter flange for suction and drive lines which makes it easier to hook up. To be known as the Rapidayton Super Multi-Stage Vertical Pumps, models for deep wells (up to 200 ft) will be equipped with jet assemblies and with standard N.E.M.A. motors from ½ to 2 hp. Shallow well pumps will be available with ¾ to 2 hp standard motors. DAYTON PUMP & MANUFACTURING CO., DAYTON, OHIO.

Masonry drill bits out

Designed for drilling holes from ¾ in. to 5 in. diameter in hard masonry, Thunder-Core drill bits are carbide tipped and the maker says they will easily cut through concrete with bluestone or granite aggregate and even solid granite. What's more, one man can operate the drill and it's said not to bind at all. Tested satisfactorily in the field, they are now in production through selected dealers. NEW ENGLAND CARBIDE TOOL CO., CAMBRIDGE 39, MASSACHUSETTS.

(Continued on next page)

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New low-cost way to transport bulk materials

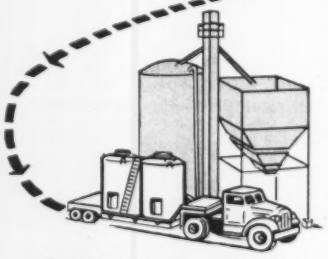
Hudson Builders' Material Co., Jersey City, N. J., save time and money moving bulk cement by using L.C.L. Air-Activated Containers mounted on La Crosse low bed trailers. Cement is *blown* from similar containers on railroad cars into trailer-mounted containers by compressed air . . . is automatically unloaded at plant same way. Each container holds 10 tons of bulk cement . . . is easily loaded in 10 minutes . . . unloaded in 6 minutes.

Besides saving up to $1.65 per ton by buying cement in bulk, Hudson Builders' also eliminate costly hand handling and improve working conditions with this *completely dust-free, all-weather method.*

Investigate the savings *you* can make by *mechanizing* your hauling and materials handling operations on job-proved La Crosse Trailers. Choice of standard or custom-built models—capacities from 6 to 67 tons.

A Cement is blown from cars to containers by compressed air.

B Trailer hauls containers ⅛ mi. to plant.



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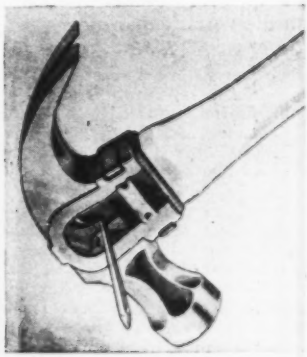

Nail holder clips to hammer head

The nail clip mounted on the head of the hammer is known as a "third hand" and allows free use of one hand while starting a nail. In addition it provides a hammer's-length extra reach which comes in mighty handy for form work, ceiling work, roof framing, scaffolding, etc. A steel clip on each side holds anything from shingle nails to 20d spikes. Amsco Company, Dept. CNR, Le Center, Minn.

Improved welds developed for galvanized metal

Galvanized angle iron can be welded without losing the galvanized coating. This is accomplished by using a Heliarc torch with Everdur filler rod. The method has been accepted as satisfactory for air-conditioning coil support frames in the new Prudential Insurance Company building in Houston, Tex. Previous welding jobs on galvanized iron were done by other methods which often destroyed the corrosion-resistant coating and left unsightly welds. Grinding the weld area and redipping the entire section produced extreme distortion with subsequent straightening operations costing an estimated two or three times the cost of assembly. *As in other welding operations on zinc-coated metals, the operator in this process should be provided with adequate ventilation or approved breathing equipment.* Linde Air Products Company, 30 East 42nd Street, New York 17, N. Y.

Correction

Due to error in first-run issues of ENR, April 10, 1952, the headline "Heavy duty ripper joins monster class" appeared (p. 41). It should have read "Heavy duty ditcher joins Shawnee line".

New product briefs . . .

An anti-friction bearing lubricant—**Texaco High Temp Grease**—considerably extends the efficient range of operation of ball, roller, and plain bearings at high temperatures. Announced by **The Texas Company, 135 East 42nd Street, New York, N. Y.**, its water resistance makes it applicable in operations where long retention of grease and resistance to washing out are factors.

A new **rock-type tire** designed particularly for graders operating where there is considerable rock or under especially tough conditions has been announced by **the B. F. Goodrich Company, Akron, Ohio.** The need for this specialized tire was brought on because of a growing use of special tractors, graders and motor patrols in quarries and other types of service where cutting of the casing is a particular problem. Maximum rated load on the 800 T. is 6600 pounds when inflated to 50 pounds pressure.

The Clayton & Lambert Mfg. Co., Louisville 10, Kentucky announces production of new **blowtorches capable of using either leaded or non-leaded gas as fuel.** Announcement of use of the leaded gas in the company's CL-32A-1 or 600A-1 torch was held up until successful field tests were established.

Two-coat-a-day wall painting is uniformly possible with **a sealer-coater** which has been placed on the market after more than two years of field testing and trial marketing by **E. I. Du Pont de Nemours & Company, Wilmington, Delaware.** The new product dries in less than two hours under normal conditions. It can be applied over dry wall construction, wall board, oil-type flat wall paints or enamels, resin-emulsion paints and bare plaster.

A new **portable stud welder** has been added to the Graham line which requires only an electrical outlet of 110, 220 **or 440-v ac current.** The new "3000" welder, product of **Graham Mfg. Corp., 1643 Nat'l Bank Bldg., Detroit 24, Michigan,** has less wattage pull than that of a domestic flat iron.

Armstrong Cork Co of Lancaster, Penna. has added a new incombustible, **perforated mineral acoustical tile** to its line. Made from mineral wood and binding agents, Minatone is perforated with 676 holes in each square foot and factory painted with two coats of white latex resin paint on the face and bevels. Tiles are 12x12x⅝ in and installed by cement application or mechanical suspension.

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EDITORIALS

Censorship comes a cropper

NO BETTER EXAMPLE of the uselessness—and danger—of censorship can be found than that which is currently being revealed by the Congressional inquiry into the building of military bases in Morocco and Greenland.

These projects were begun under the greatest secrecy. They were spoken of in whispers by the State Department and all branches of the Department of Defense. The negotiations with the foreign countries involved were carried on behind closed doors. The construction contractors and the architect-engineers selected for the work were sworn to secrecy. When publications such as ENR found out about the bases, they were warned not to write anything about them.

All this was done in the so-called interest of security. What security? As soon as the French government discussed the Moroccan bases, French Communists immediately relayed the information to Russia. The "secret" base in Greenland was soon so well known that the Russians were broadcasting to the workers there in English. Now the whole story of the Moroccan bases is being spread on the record in this country. The Greenland base—Operation Bluejay—is becoming better defined every day. So secrecy is no more. Also if secrecy meant security, that too is lost.

AND WHOSE SECURITY? Actually we are neither more nor less secure than we were when censorship was in vogue on these bases. But a considerable number of individuals, contractors, architect-engineers and Army Engineers have had their reputations besmirched, their abilities questioned and their honesty impugned. In that sense, at least, their security has been reduced.

Moreover, because the chaotic conditions that prevailed on the job could be hidden behind the cloak of censorship, they were not remedied in time to avert what is claimed to be a great waste of funds. In that sense, the security of the American taxpayer has also undoubtedly been reduced.

As an added charge against censorship, it may be noted that it has played a part in keeping those accused of wastefulness on the airbases from replying quickly and fully to their critics. And in listening to bits and pieces of criticism—often from discharged or malcontented workers—the Congressional committee has failed to bring out many of the important and basic causes of the chaos and waste—a real war scare, poor advance planning, inadequate engineering, late agreements with the French on land and rights-of-way and job shutdowns when money ran out because of snarling in Washington red tape. This too can be partly charged to censorship.

Some months ago when permission was given all departments of government to exercise censorship on policy—as contrasted to security censorship—there was enough hue and cry to cause a backdown on the announcement. The public recognized that this type of censorship is wrong. But military censorship is seldom challenged. The Moroccan airbase muddle suggests it should be.

For the most part the only purpose served by the secrecy stamp on the [illegible] airbases has been to provide the undercover divisions of the State and Defense Departments with a job. Keeping things secret is a game that professionals in each country play with one another. Consider this actual quote from one of our own, of general officer rank. Question: What harm is there in publishing this article? Thousands of people know of the existence and character of this facility. Answer: "That's true, but your magazine finds its way to Russia. If we thus supply the Russians with this information, they will not have to have so many spies over here. Then it would be all the harder for us to catch any of them." In other words, the more the merrier. The game must go on.

IT IS TIME to start questioning the usefulness—and counting the disadvantages and dangers—of a lot of military censorship. When we build airbases anywhere the world knows about it. Every guided missile plant in this country is charted by our enemies. A great deal is known about our atomic weapons program despite a censorship so rigid that it is a criminal offense to break it. How then can the usefulness of censorship be defended?

And not only does censorship fail of its purpose, its existence permits none of the normal checks and balances that reduce tendencies for careless construction work and wasteful practices. Finally, aided by censorship, jobs can undeservedly be given an "emergency" status wherein haste is certain to cause waste.

EDITORIALS LIKE THIS and articles pointing out the dangers of censorship usually have two strikes on them at the start because the reader thinks the writer is merely seeking help on one of his own problems. But the general public is going to wake up some day to the painful truth that censorship was really its problem, and that it is too late to do anything about it.

This journal has its troubles with censorship, but they are just troubles and can readily be survived. What is serious is that censorship deprives the public of information that it must have for its own protection against courses of action that could destroy its liberties and wreck its welfare. Censorship came such a cropper on the Moroccan airbases, that such a conclusion can be avoided no longer.

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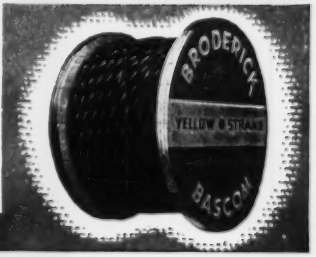
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